OIPE
FEB 22 2006
PATENT & TRADEMARK OFFICE
IAP58

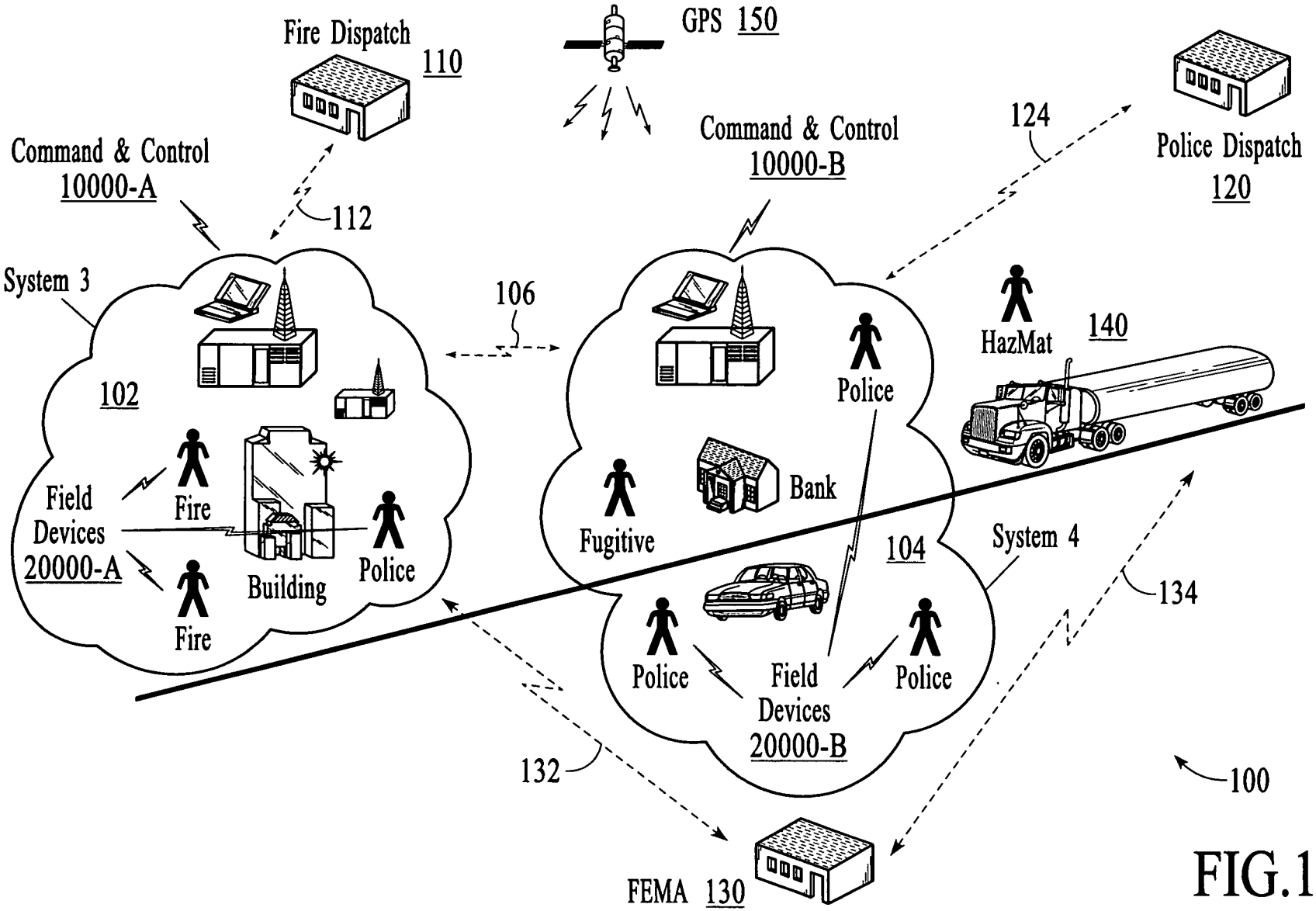
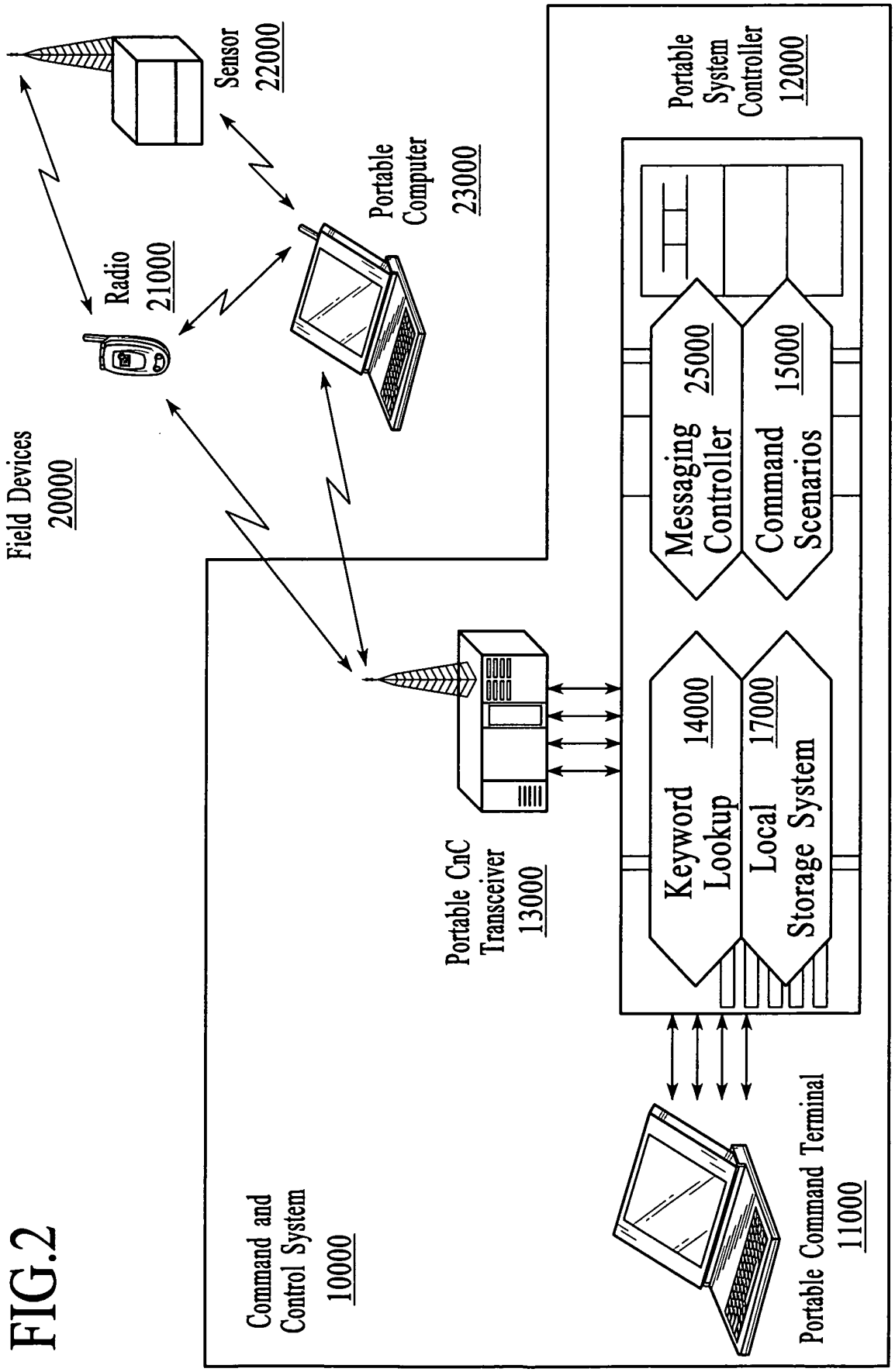


FIG.1

FIG.2


Field Devices
20000
Sensor
22000
Radio
21000
Portable
Computer
23000
Portable
System
Controller
12000
Messaging
Controller
25000
Command
Scenarios
15000
Keyword
Lookup
14000
Local
Storage System
17000
Portable CnC
Transceiver
13000
Command and
Control System
10000
Portable Command Terminal
11000

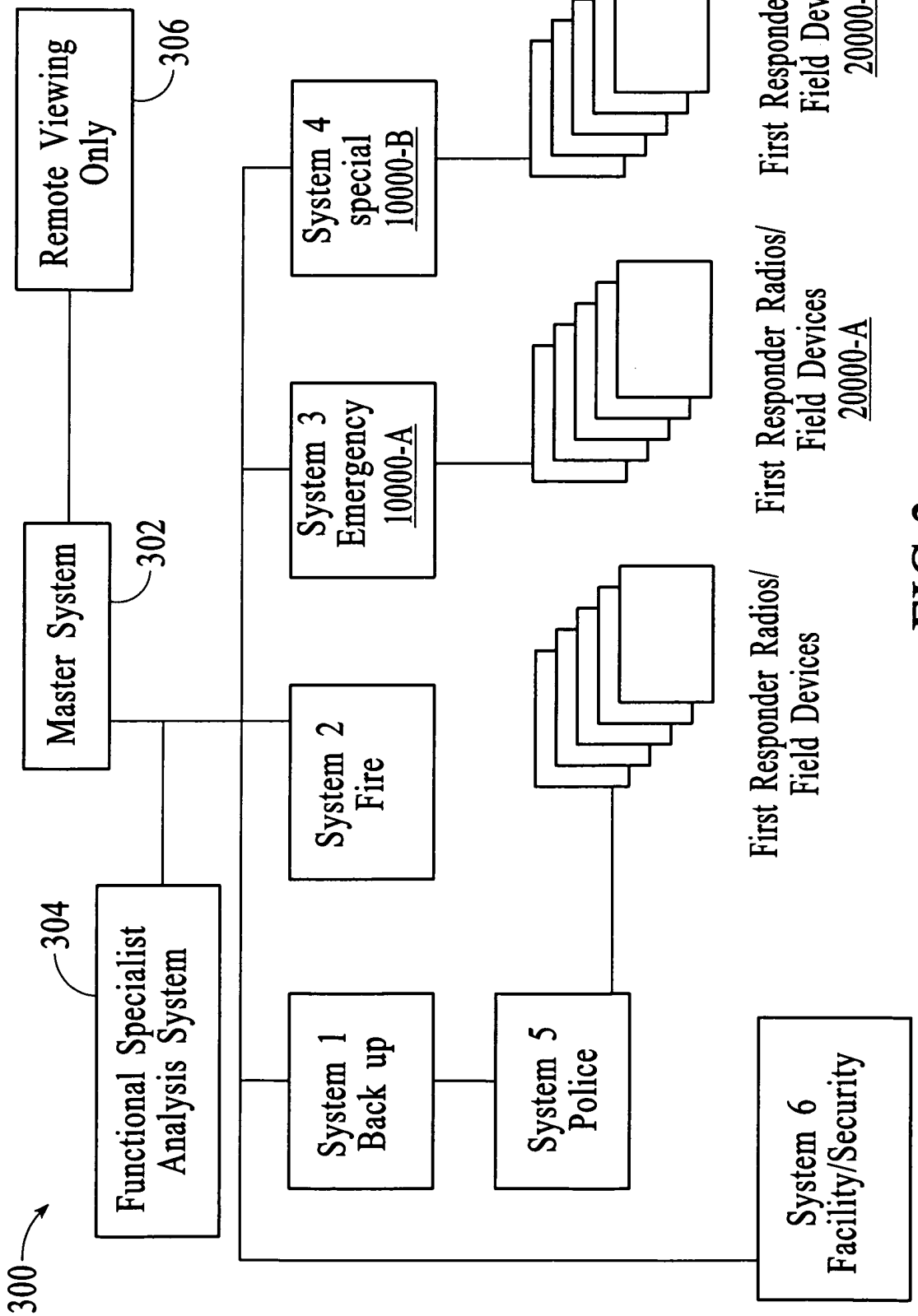

300
Functional Specialist Analysis System
304
Master System
302
Remote Viewing Only
306
System 1 Back up
System 2 Fire
System 3 Emergency 10000-A
System 4 special 10000-B
System 5 Police
System 6 Facility/Security
First Responder Radios/ Field Devices
First Responder Radios/ Field Devices 20000-A
First Responder Radios/ Field Devices 20000-B

FIG.3

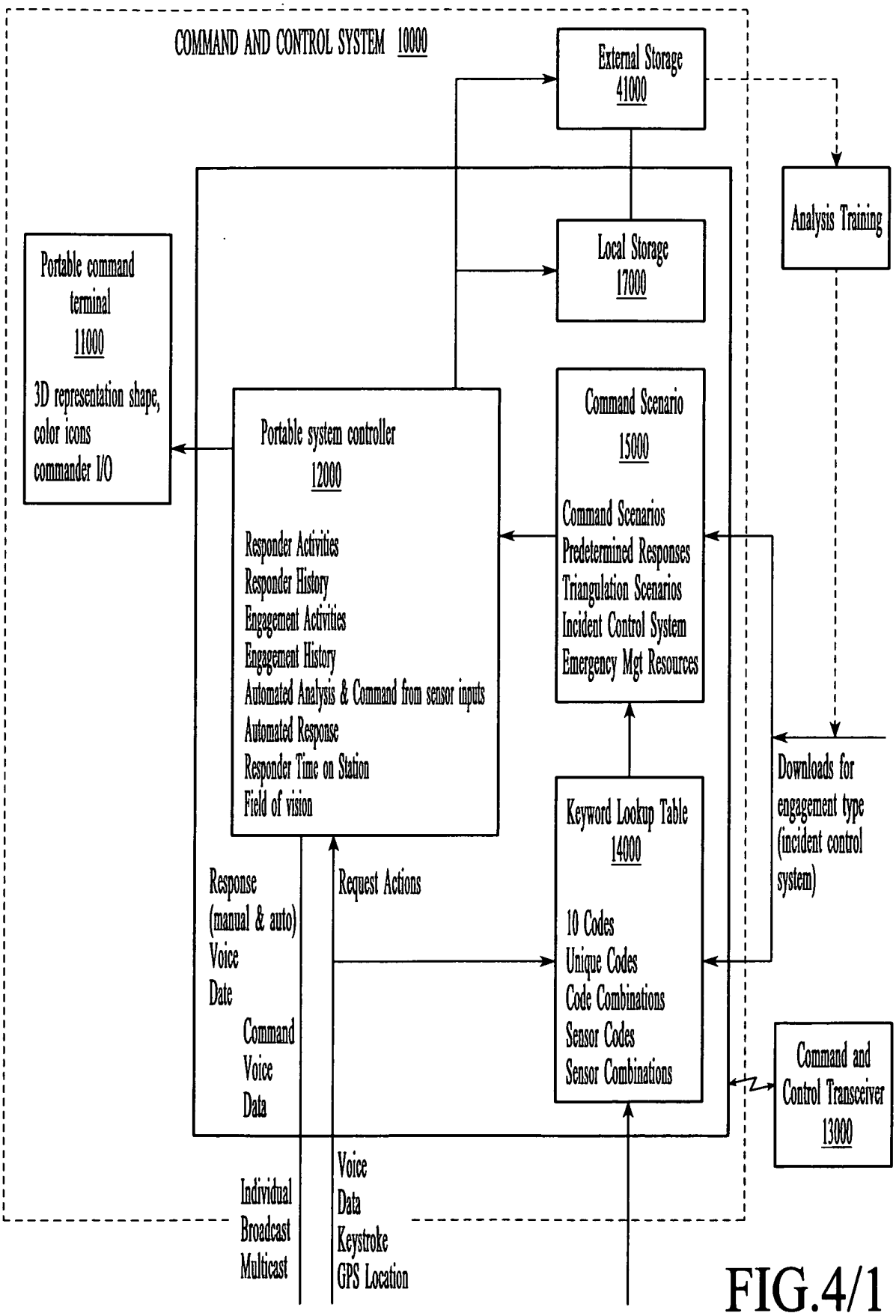

COMMAND AND CONTROL SYSTEM 10000
External Storage 41000
Analysis Training
Local Storage 17000
Portable command terminal 11000
3D representation shape, color icons commander I/O
Portable system controller 12000
Responder Activities
Responder History
Engagement Activities
Engagement History
Automated Analysis & Command from sensor inputs
Automated Response
Responder Time on Station
Field of vision
Command Scenario 15000
Command Scenarios
Predetermined Responses
Triangulation Scenarios
Incident Control System
Emergency Mgt Resources
Downloads for engagement type (incident control system)
Keyword Lookup Table 14000
10 Codes
Unique Codes
Code Combinations
Sensor Codes
Sensor Combinations
Response (manual & auto)
Voice
Date
Command
Voice
Data
Request Actions
Command and Control Transceiver 13000
Individual
Broadcast
Multicast
Voice
Data
Keystroke
GPS Location

FIG.4/1

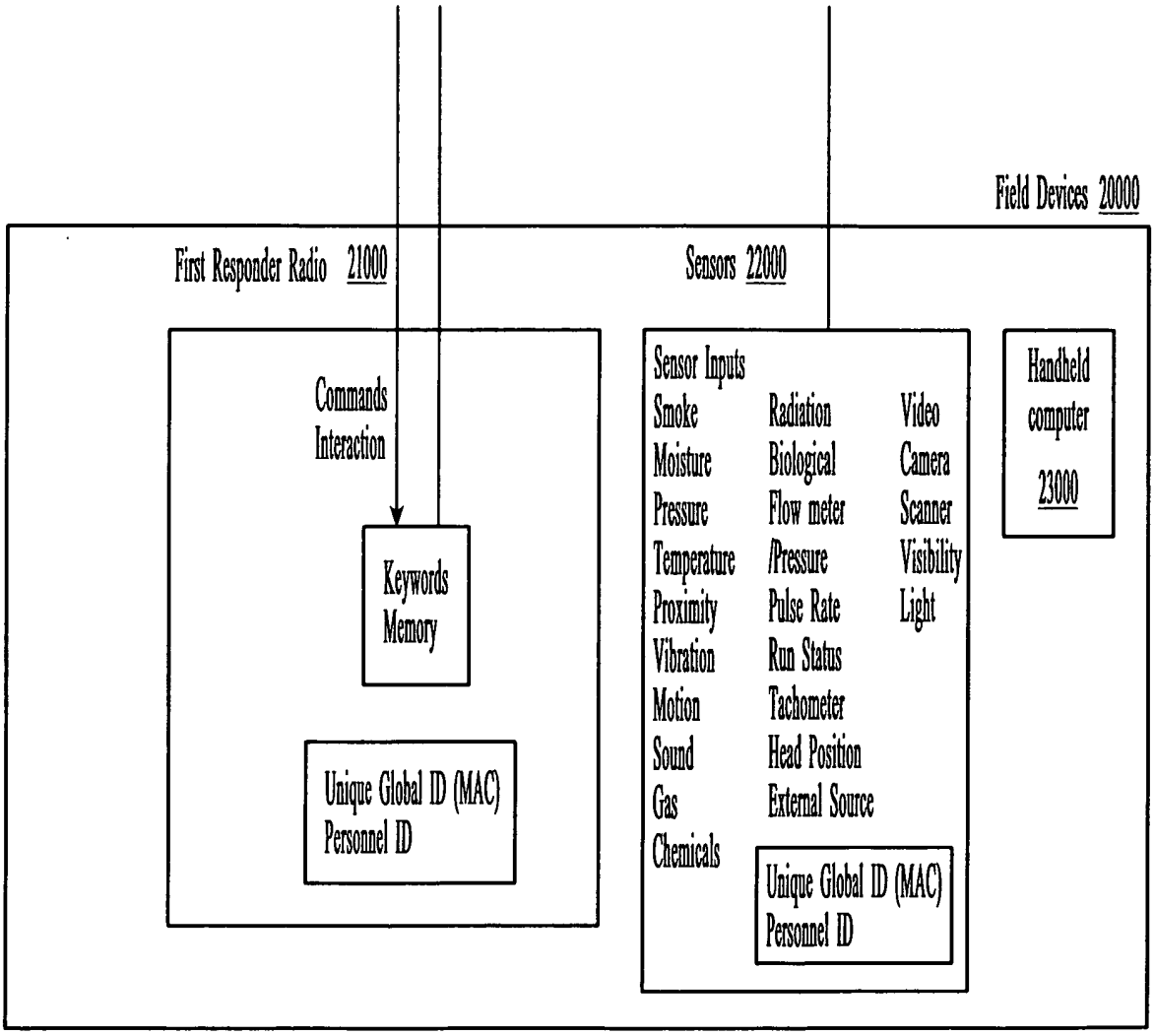

Field Devices 20000
First Responder Radio 21000
Commands
Interaction
Keywords
Memory
Unique Global ID (MAC)
Personnel ID
Sensors 22000
Sensor Inputs
Smoke
Moisture
Pressure
Temperature
Proximity
Vibration
Motion
Sound
Gas
Chemicals
Radiation
Biological
Flow meter
/Pressure
Pulse Rate
Run Status
Tachometer
Head Position
External Source
Video
Camera
Scanner
Visibility
Light
Unique Global ID (MAC)
Personnel ID
Handheld
computer
23000

FIG.4/2

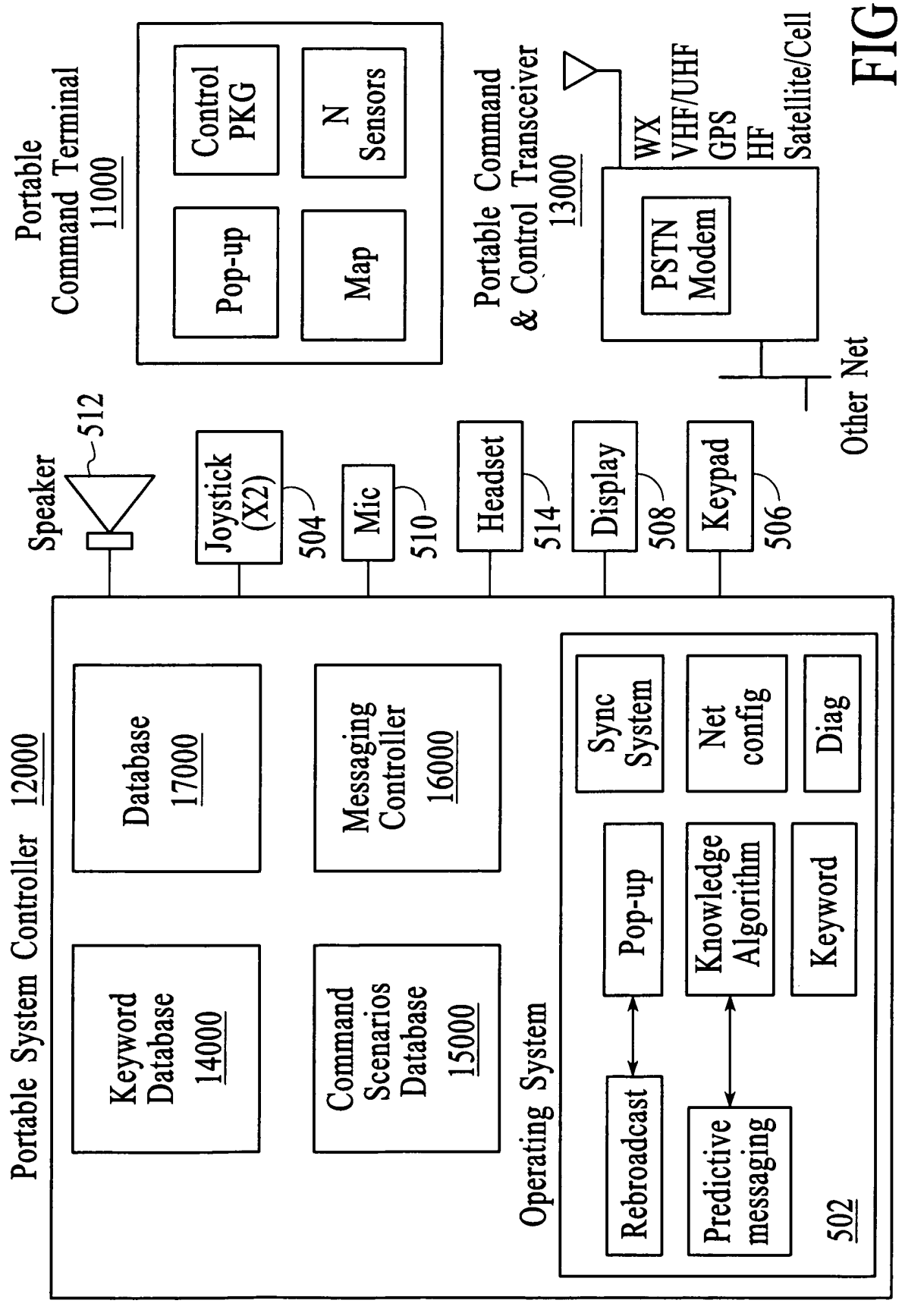

Portable System Controller 12000
Keyword Database 14000
Database 17000
Command Scenarios Database 15000
Messaging Controller 16000
Operating System
Rebroadcast
Pop-up
Predictive messaging
Knowledge Algorithm
Keyword
Sync System
Net config
Diag
502
Speaker
512
Joystick (X2)
504
Mic
510
Headset
514
Display
508
Keypad
506
Portable Command Terminal 11000
Pop-up
Map
Control PKG
N Sensors
Portable Command & Control Transceiver 13000
PSTN Modem
WX
VHF/UHF
GPS
HF
Satellite/Cell
Other Net

FIG.5

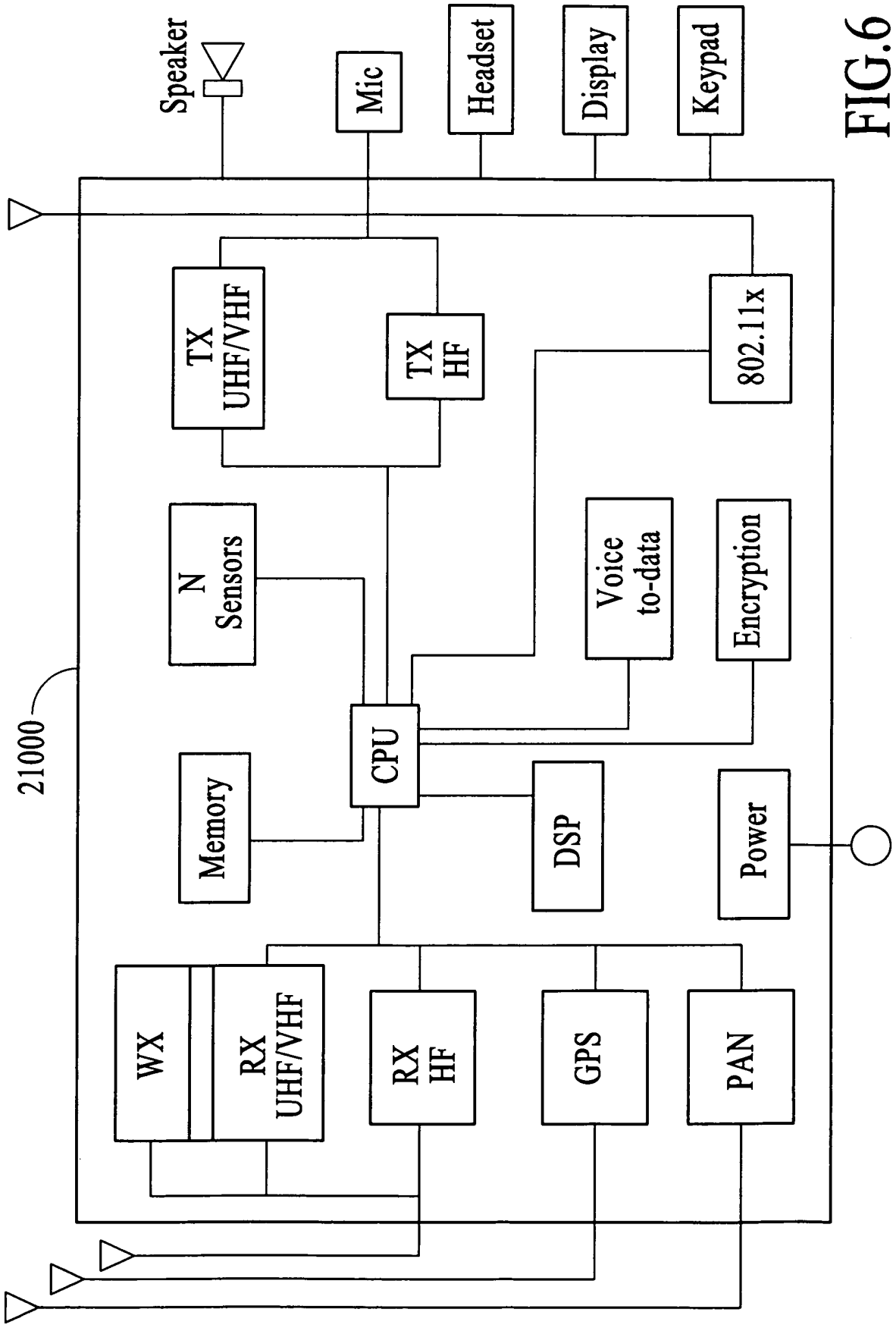

Speaker
Mic
Headset
Display
Keypad
TX UHF/VHF
TX HF
802.11x
N Sensors
Voice to-data
Encryption
21000
CPU
Memory
DSP
Power
WX
RX UHF/VHF
RX HF
GPS
PAN

FIG.6

FIG.7

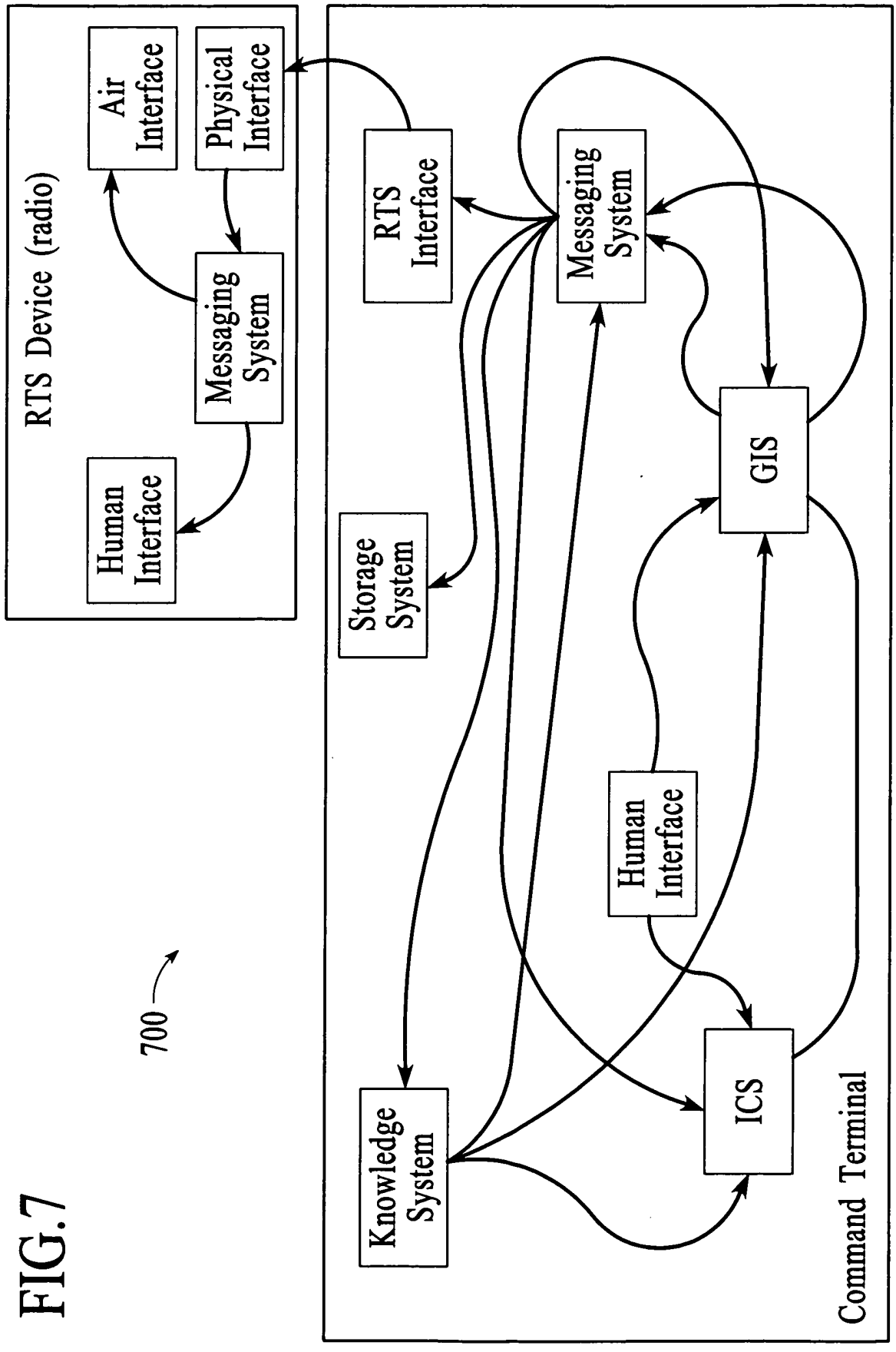
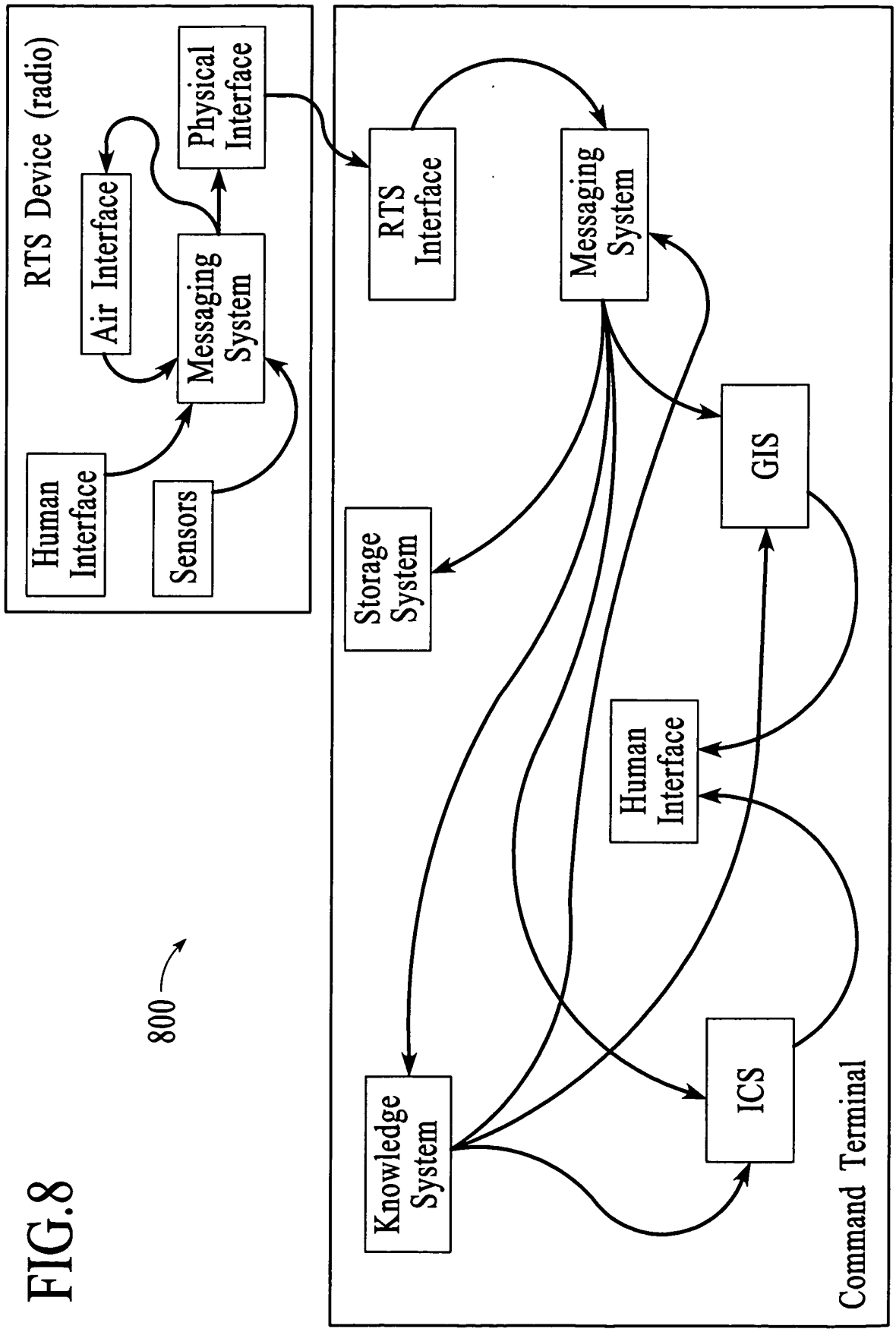

700
RTS Device (radio)
Air Interface
Physical Interface
Messaging System
Human Interface
Command Terminal
RTS Interface
Messaging System
Storage System
GIS
Human Interface
Knowledge System
ICS

FIG.8


800
RTS Device (radio)
Human Interface
Sensors
Air Interface
Messaging System
Physical Interface
Command Terminal
RTS Interface
Messaging System
Storage System
GIS
Human Interface
Knowledge System
ICS

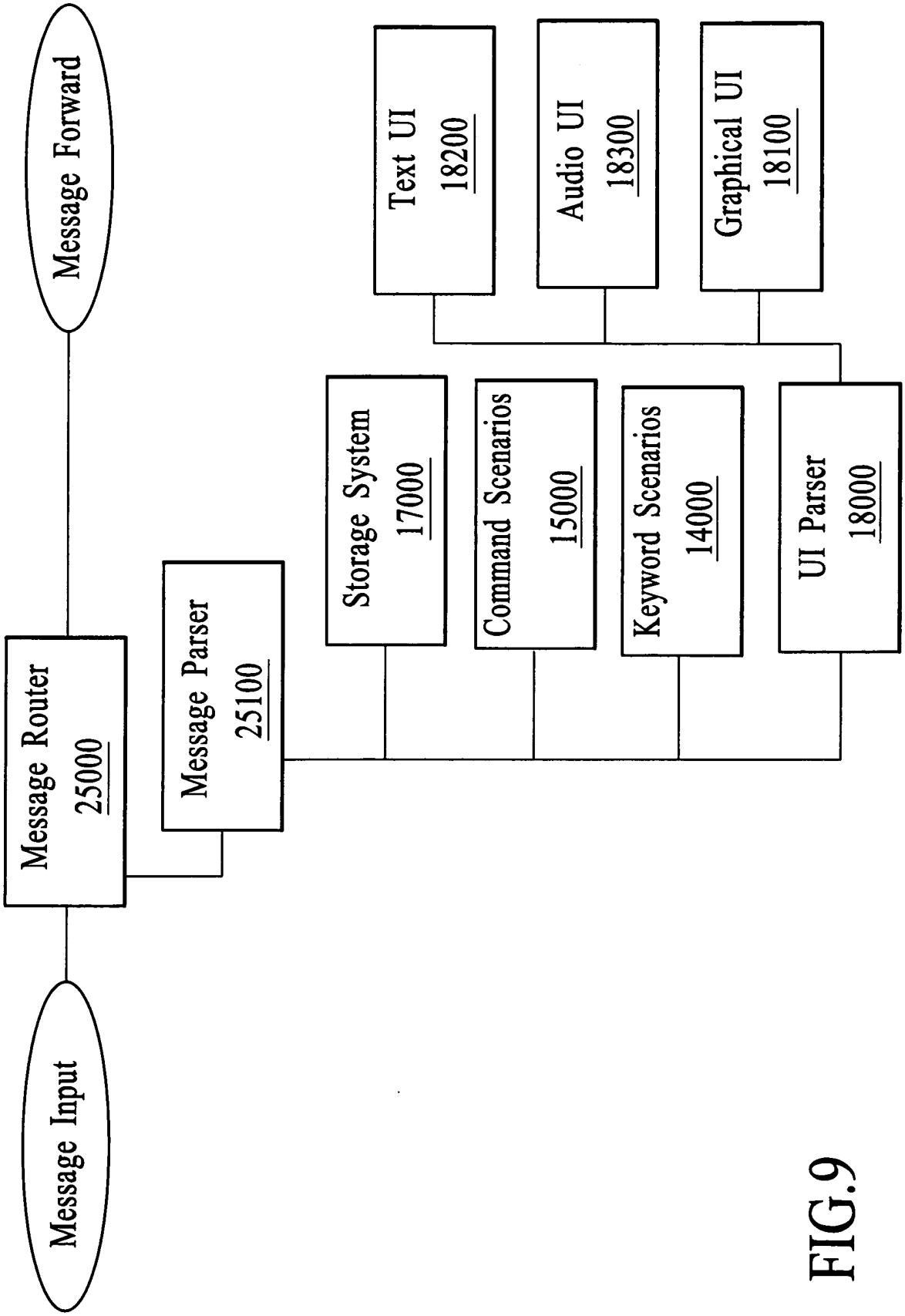
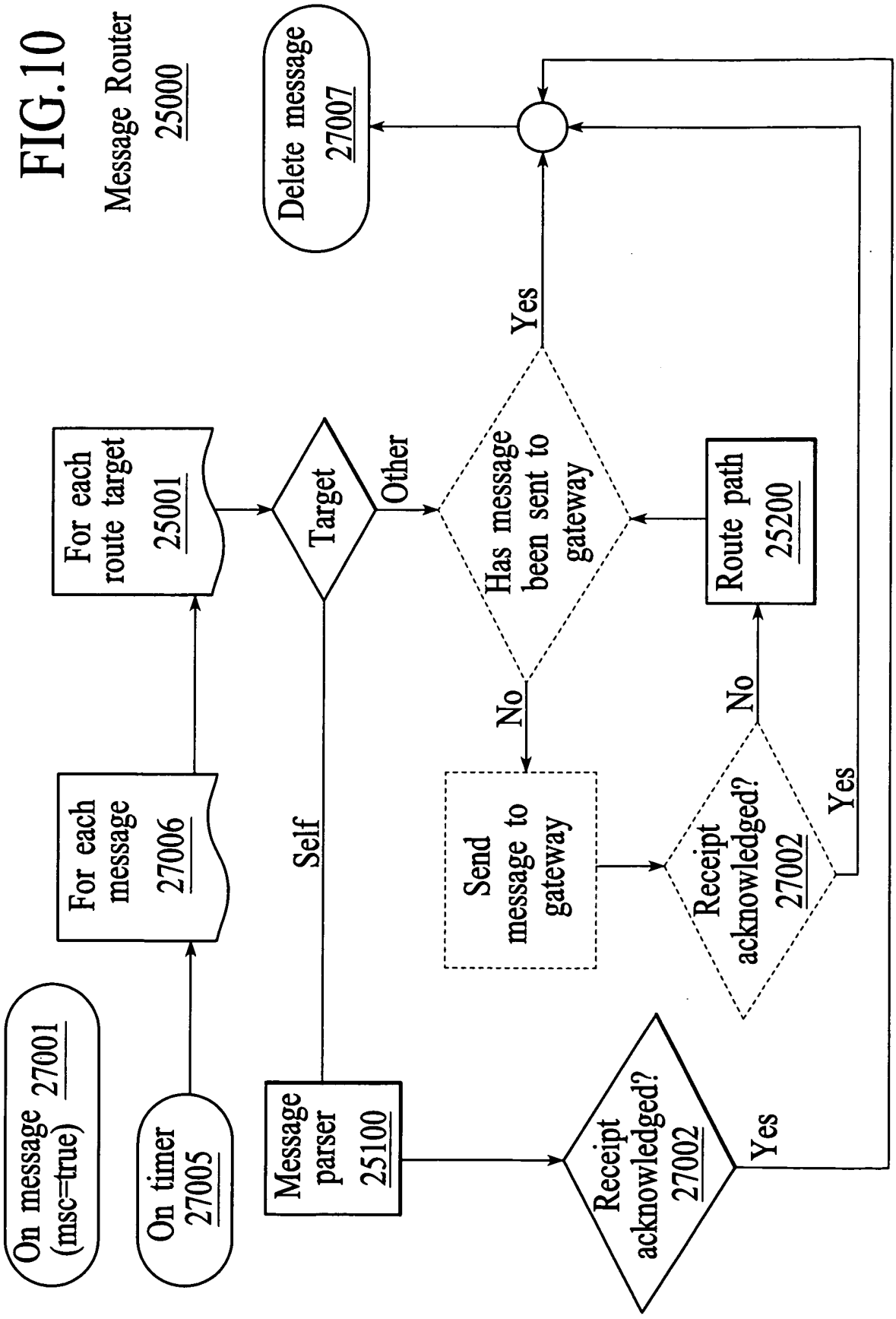

Message Forward
Message Input
Message Router
25000
Message Parser
25100
Storage System
17000
Command Scenarios
15000
Keyword Scenarios
14000
UI Parser
18000
Text UI
18200
Audio UI
18300
Graphical UI
18100

FIG.9

FIG.10

Message Router
25000



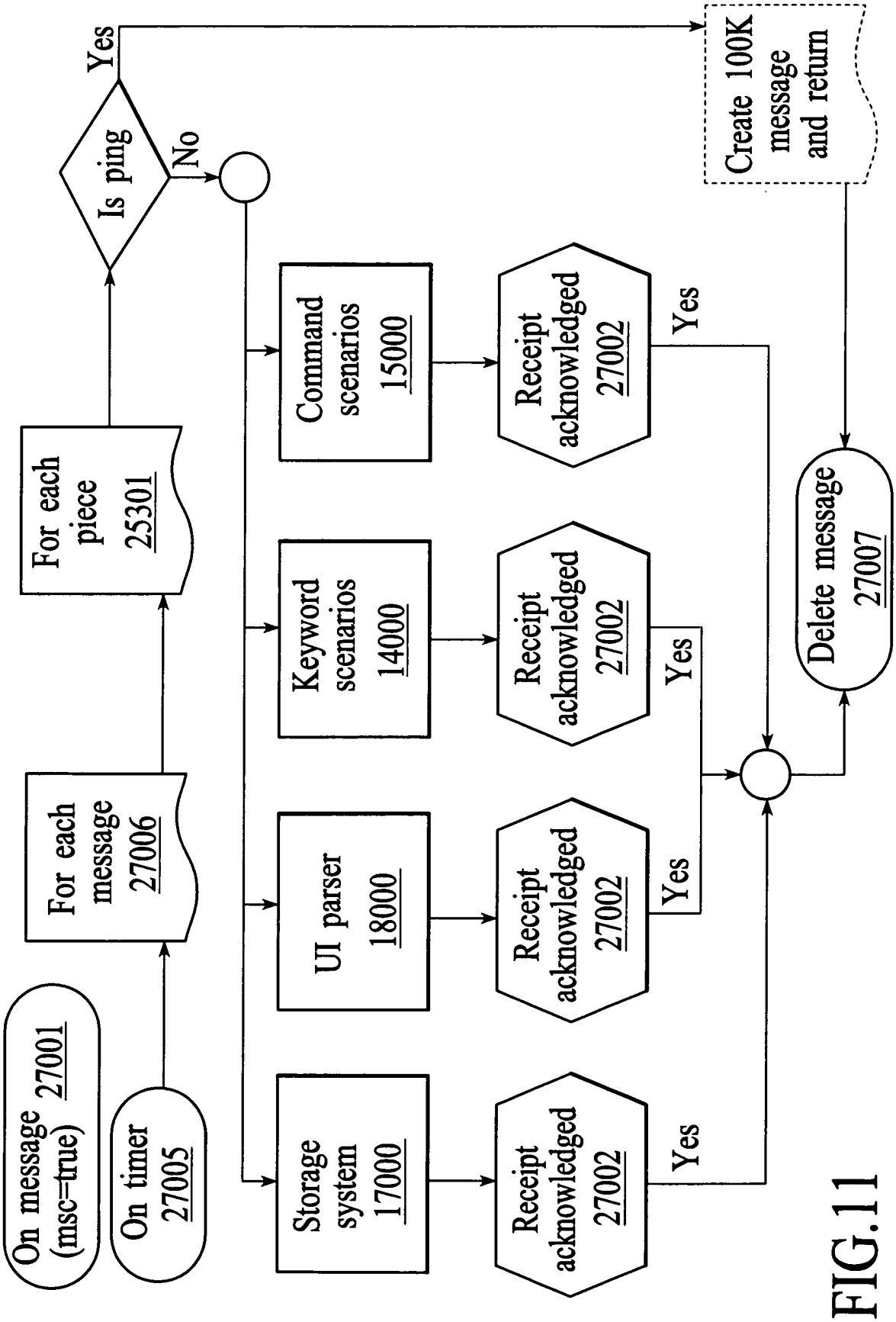

On message (msc=true) 27001
On timer 27005
For each message 27006
For each piece 25301
Is ping
Yes
No
Create 100K message and return
Storage system 17000
UI parser 18000
Keyword scenarios 14000
Command scenarios 15000
Receipt acknowledged 27002
Receipt acknowledged 27002
Receipt acknowledged 27002
Receipt acknowledged 27002
Yes
Yes
Yes
Yes
Delete message 27007

FIG.11

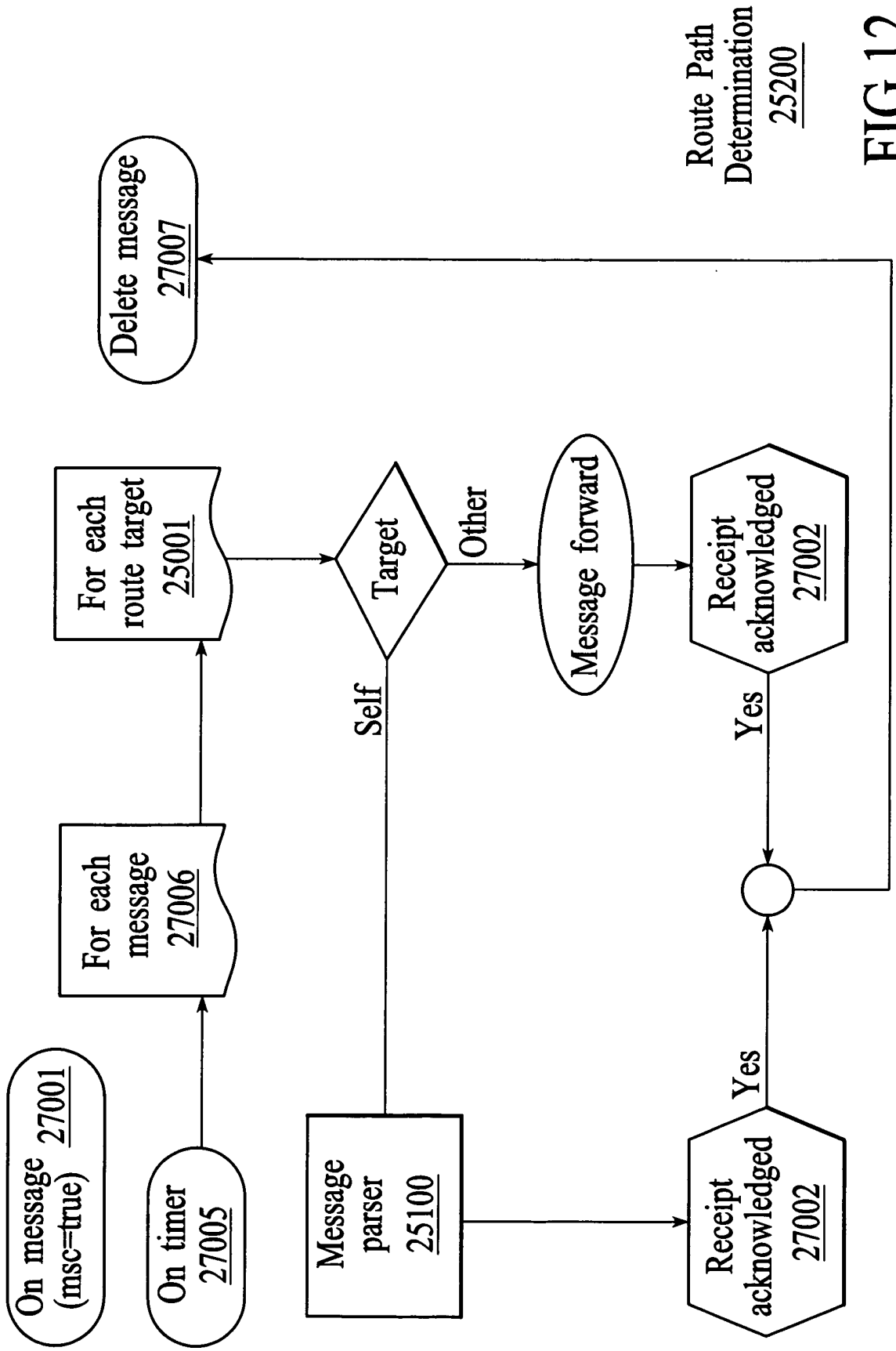

On message (msc=true) 27001
On timer 27005
For each message 27006
For each route target 25001
Message parser 25100
Target
Self
Other
Message forward
Receipt acknowledged 27002
Yes
Receipt acknowledged 27002
Yes
Delete message 27007
Route Path Determination 25200

FIG.12

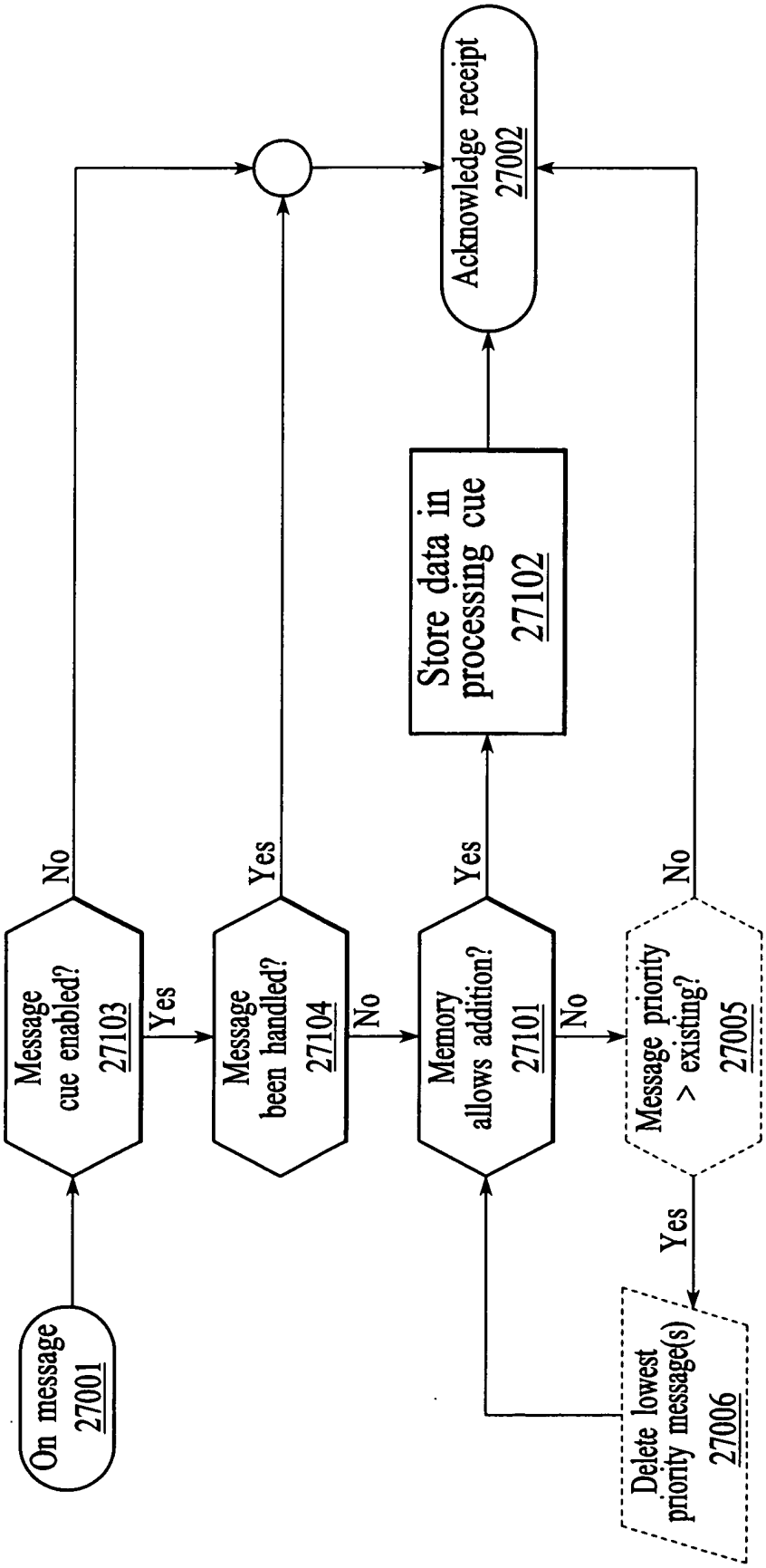
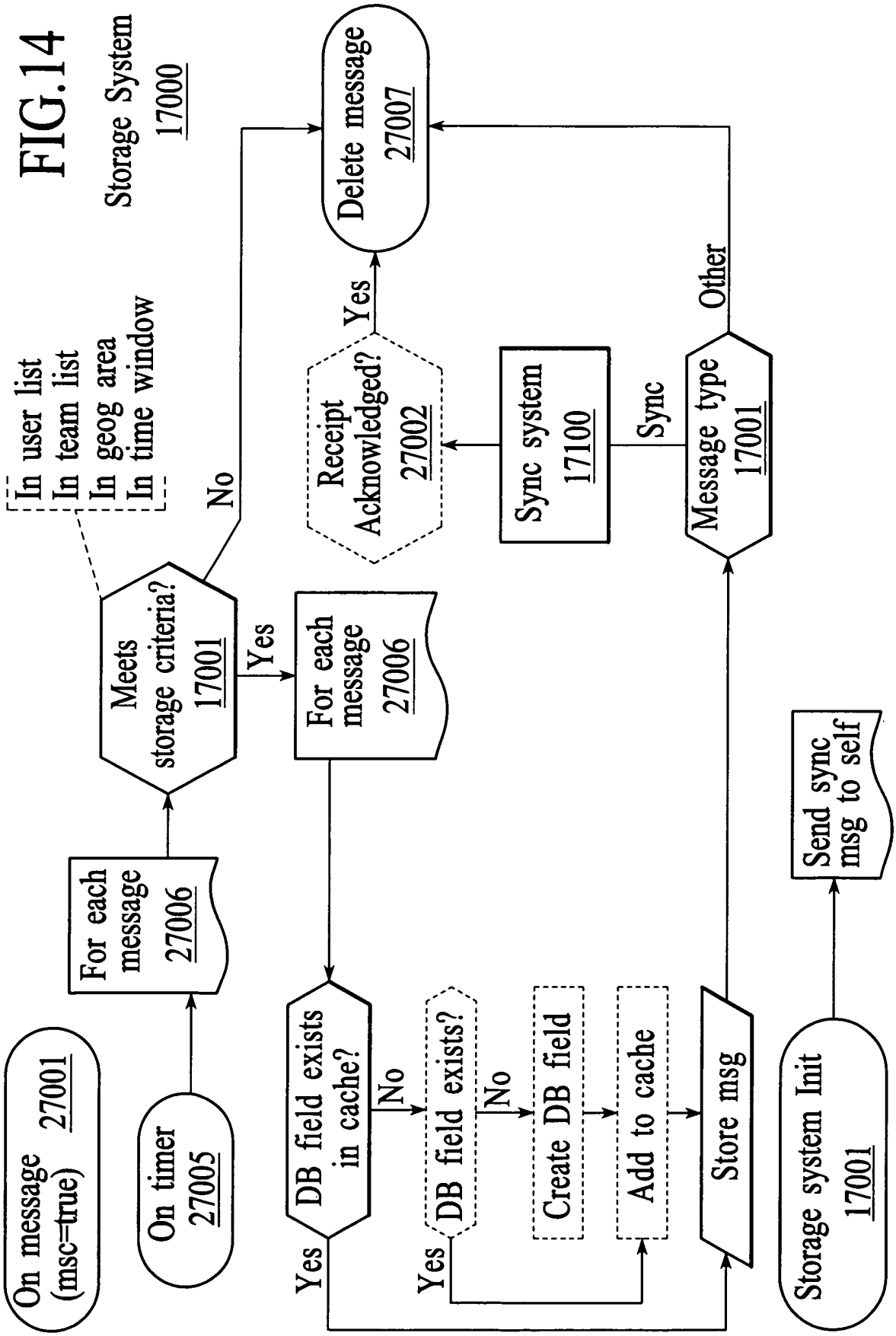

On message 27001
Message cue enabled? 27103
No
Yes
Message been handled? 27104
Yes
No
Memory allows addition? 27101
Yes
No
Store data in processing cue 27102
Message priority > existing? 27005
No
Yes
Delete lowest priority message(s) 27006
Acknowledge receipt 27002

FIG.13

FIG.14


Storage System
17000
On message
(msc=true) 27001
On timer
27005
For each
message
27006
Meets
storage criteria?
17001
In user list
In team list
In geog area
In time window
No
Yes
For each
message
27006
DB field exists
in cache?
No
Yes
DB field exists?
No
Yes
Create DB field
Add to cache
Store msg
Receipt
Acknowledged?
27002
Yes
Delete message
27007
Sync system
17100
Sync
Message type
17001
Other
Storage system Init
17001
Send sync
msg to self

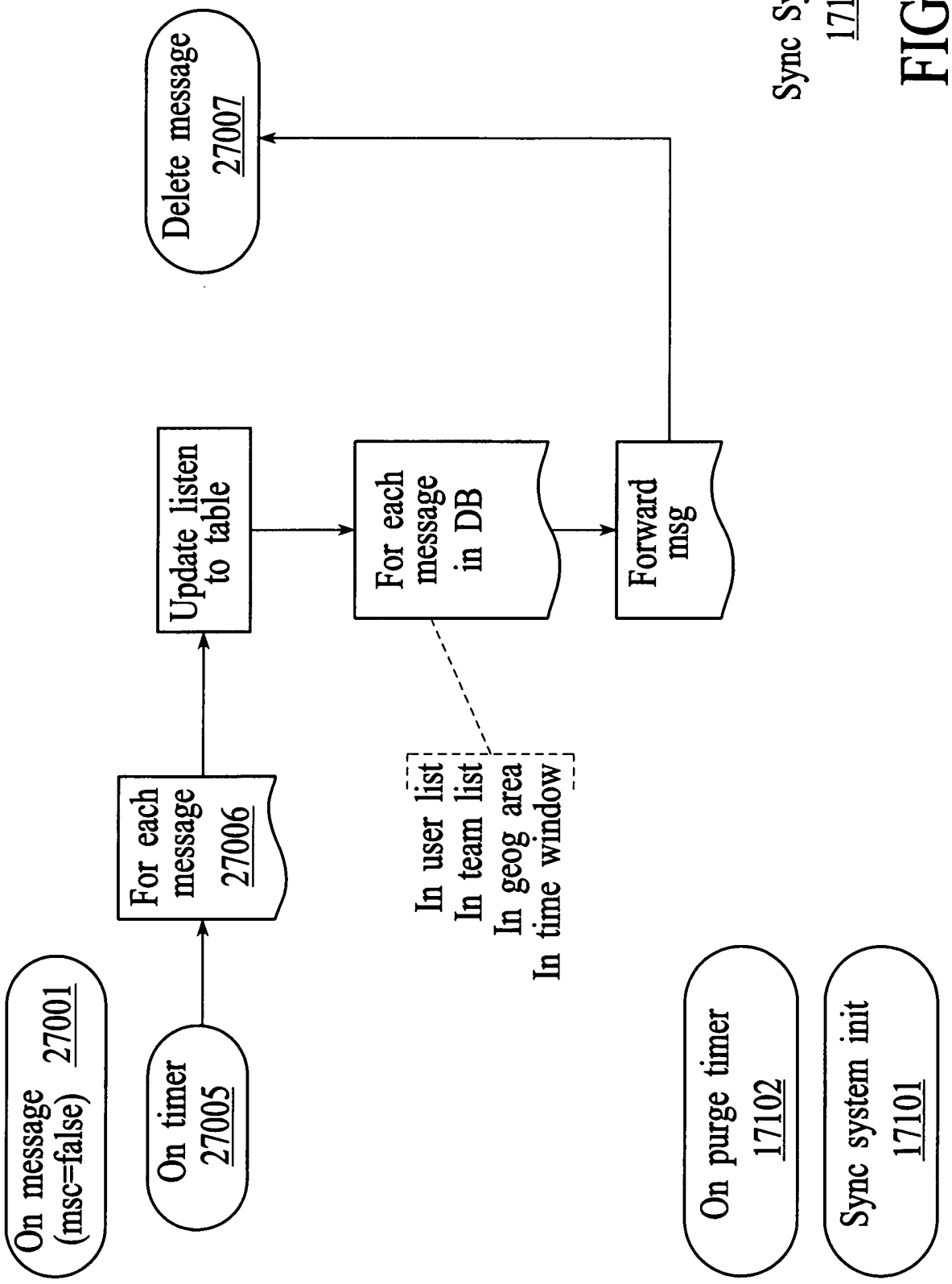

Sync System
17100
On message
(msc=false) 27001
On timer
27005
For each
message
27006
Update listen
to table
For each
message
in DB
Forward
msg
Delete message
27007
In user list
In team list
In geog area
In time window
On purge timer
17102
Sync system init
17101

FIG.15

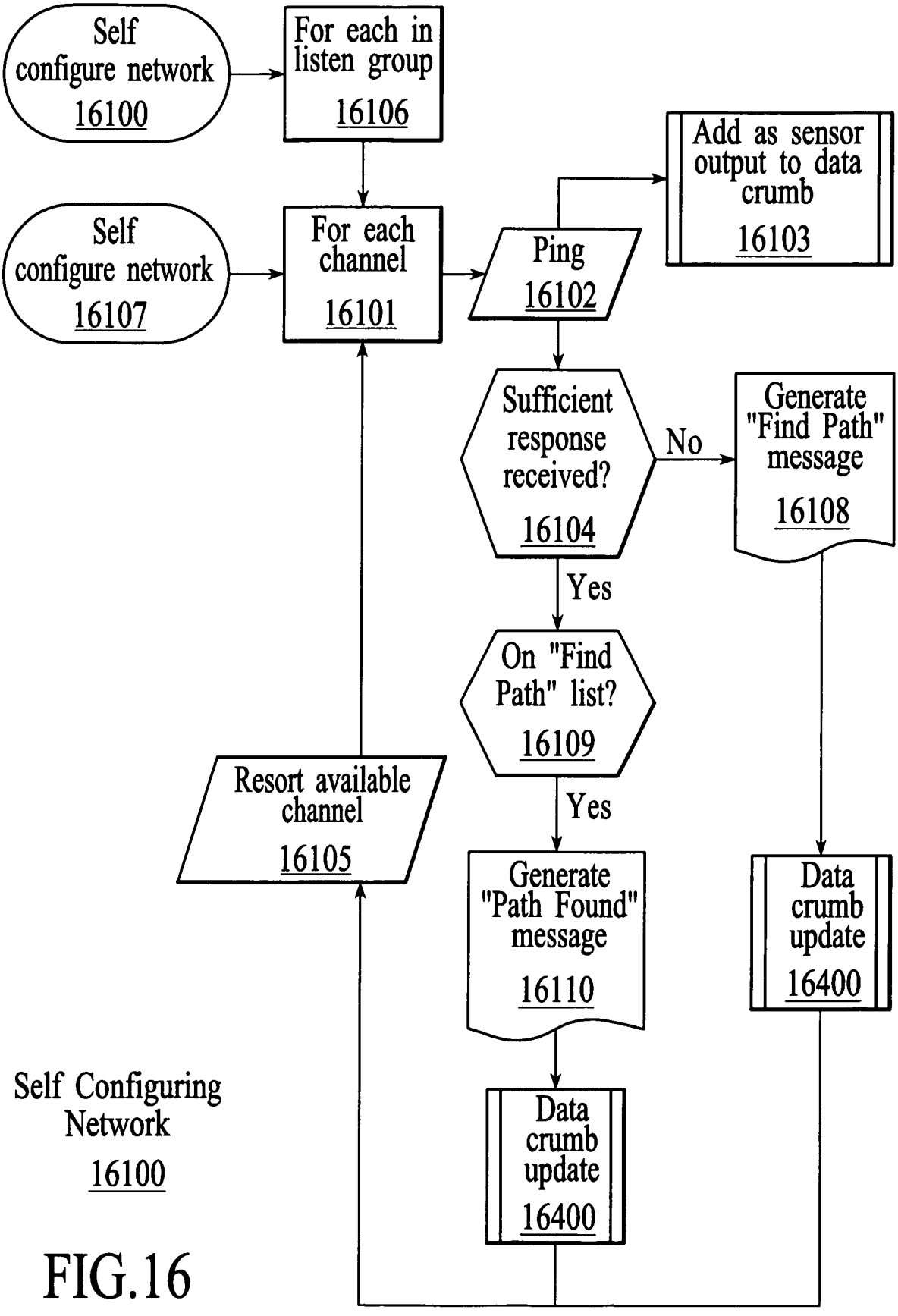
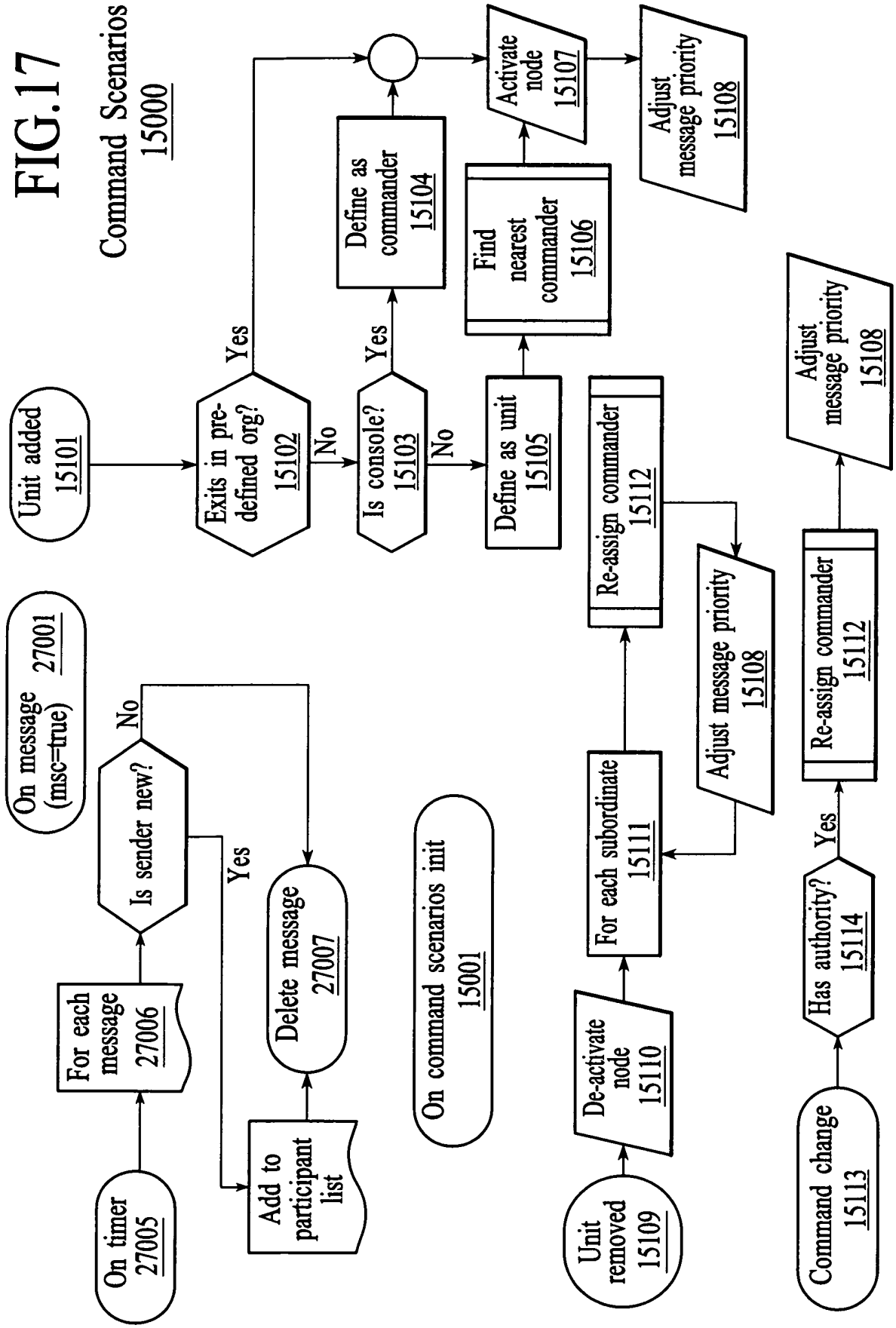
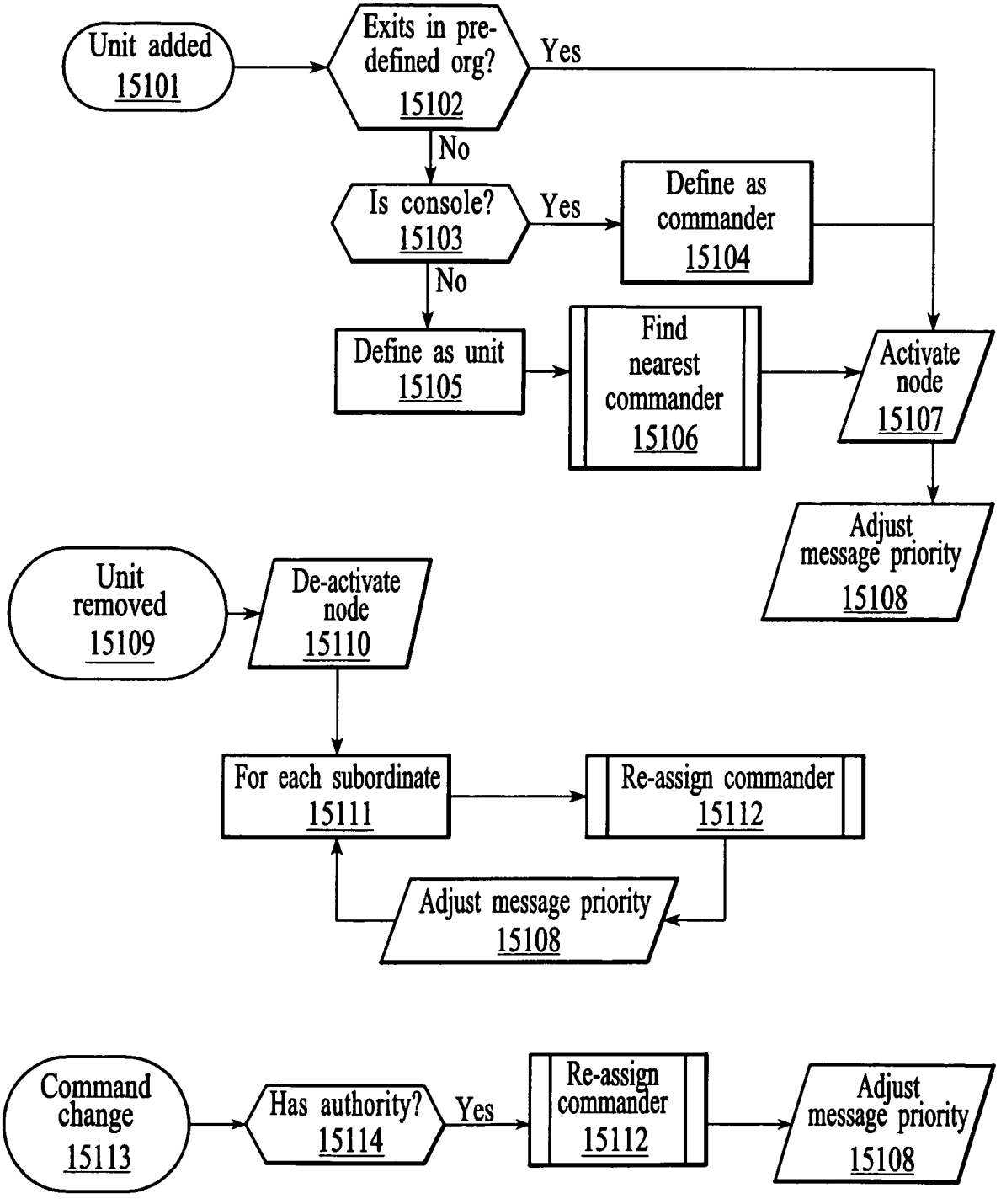

Self configure network 16100
For each in listen group 16106
Add as sensor output to data crumb 16103
Self configure network 16107
For each channel 16101
Ping 16102
Sufficient response received? 16104
No
Generate "Find Path" message 16108
Yes
On "Find Path" list? 16109
Yes
Resort available channel 16105
Generate "Path Found" message 16110
Data crumb update 16400
Data crumb update 16400
Self Configuring Network 16100

FIG.16

FIG.17


Command Scenarios
15000
Unit added
15101
Exits in pre-defined org?
15102
Yes
No
Is console?
15103
Yes
No
Define as commander
15104
Define as unit
15105
Find nearest commander
15106
Activate node
15107
Adjust message priority
15108
On message (msc=true)
27001
Is sender new?
No
Yes
For each message
27006
On timer
27005
Add to participant list
Delete message
27007
On command scenarios init
15001
Re-assign commander
15112
Adjust message priority
15108
For each subordinate
15111
De-activate node
15110
Unit removed
15109
Has authority?
15114
Yes
Re-assign commander
15112
Adjust message priority
15108
Command change
15113



Self Configuring
Command and Control
15100

FIG.18

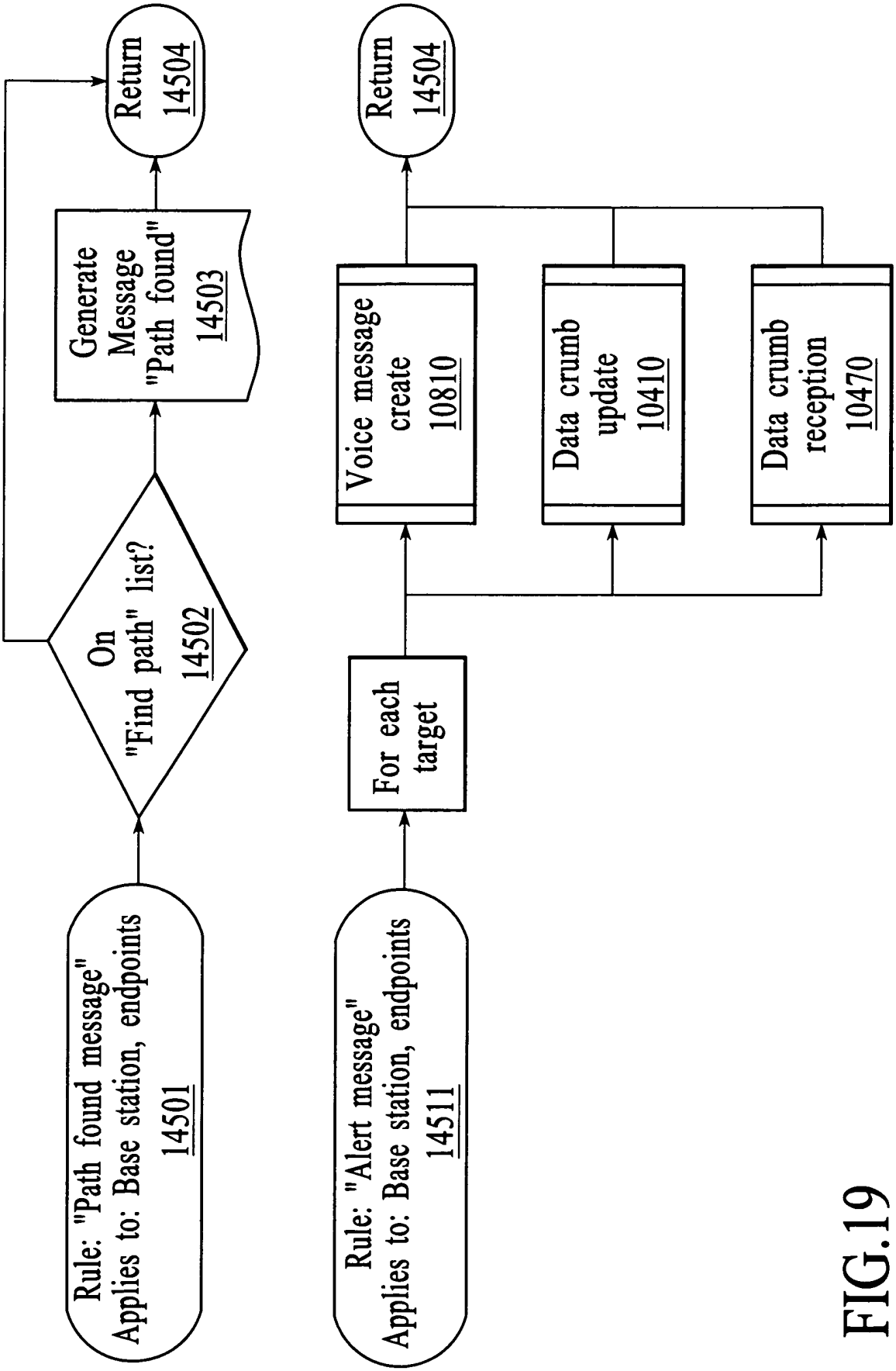

Rule: "Path found message"
Applies to: Base station, endpoints
14501
On
"Find path" list?
14502
Generate
Message
"Path found"
14503
Return
14504
Rule: "Alert message"
Applies to: Base station, endpoints
14511
For each
target
Voice message
create
10810
Data crumb
update
10410
Data crumb
reception
10470
Return
14504

FIG.19

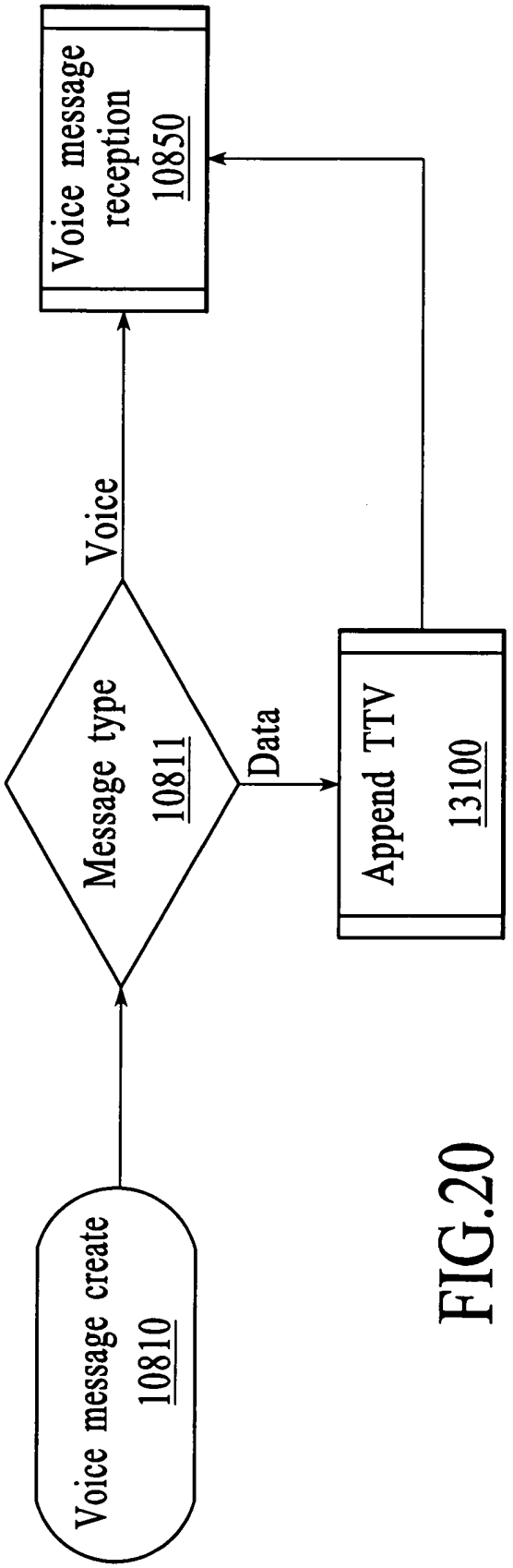

Voice message create
10810
Message type
10811
Voice
Data
Voice message
reception
10850
Append TTV
13100

FIG.20

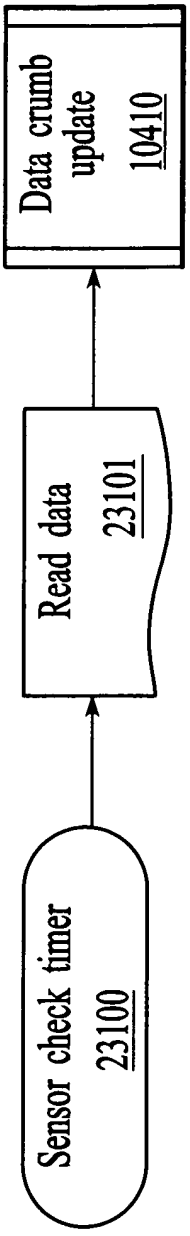

Sensor check timer
23100
Read data
23101
Data crumb
update
10410

FIG.22

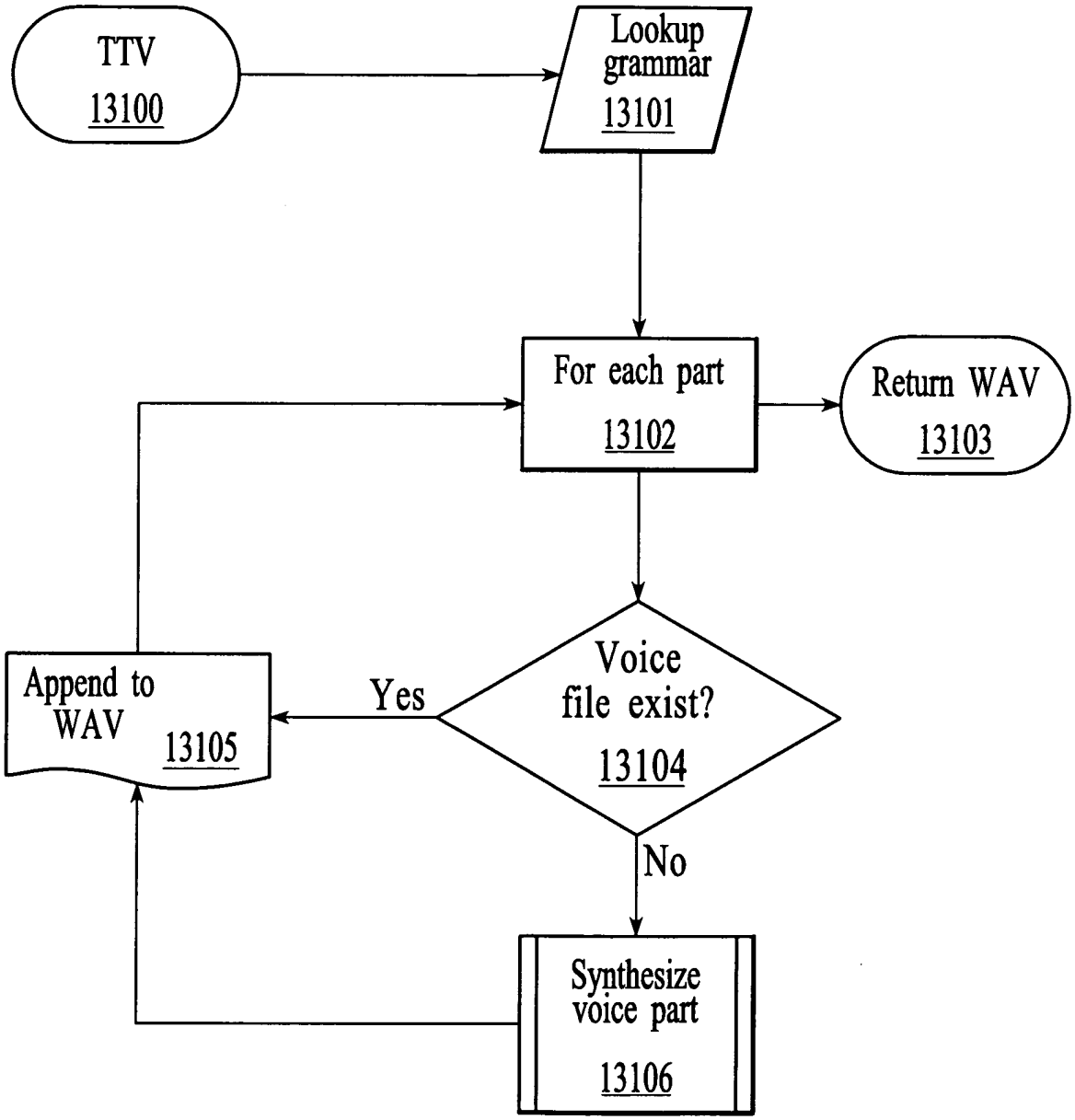

TTV
13100
Lookup grammar
13101
For each part
13102
Return WAV
13103
Voice file exist?
13104
Yes
No
Append to WAV
13105
Synthesize voice part
13106

FIG.21

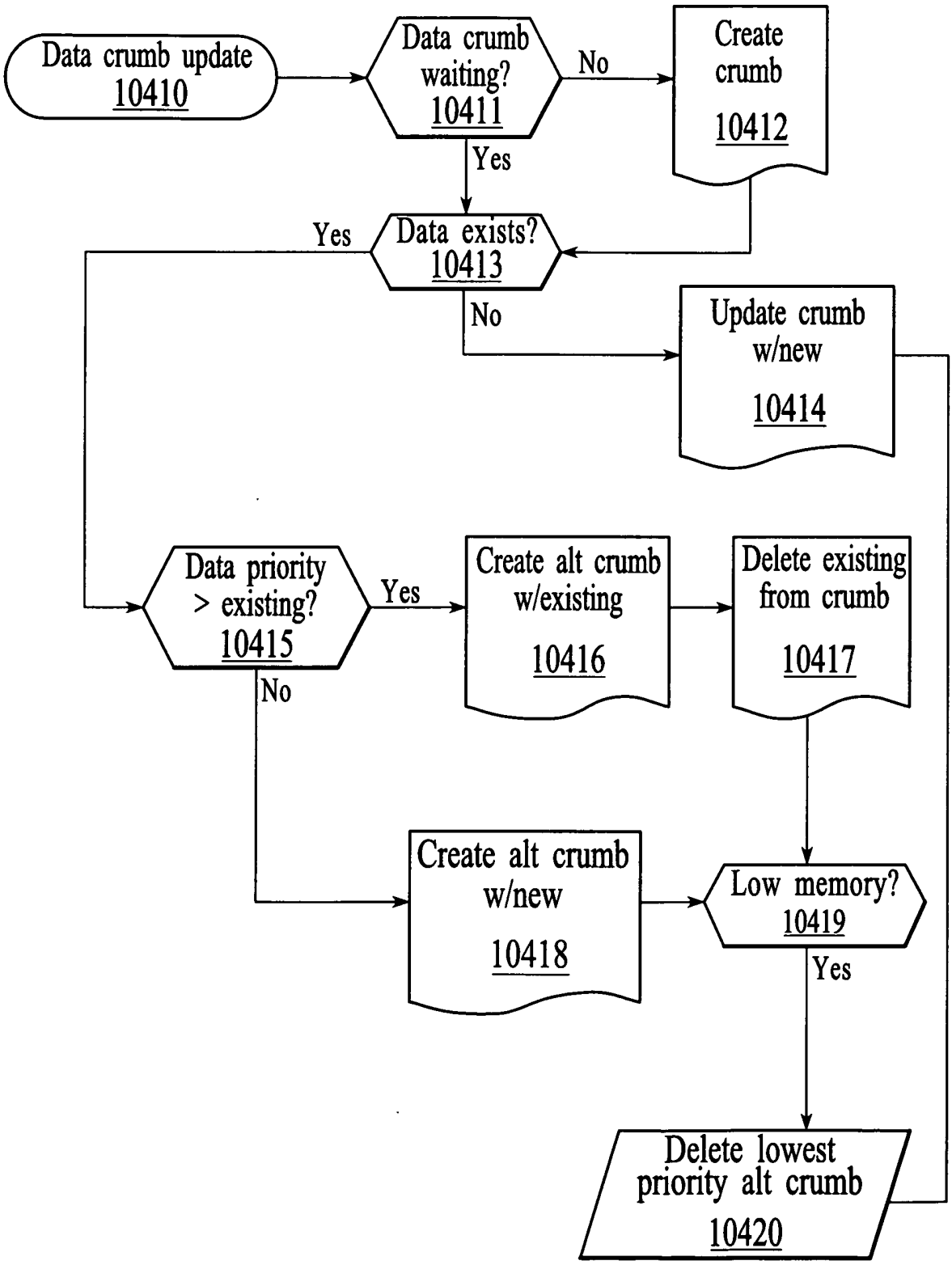

Data crumb update
10410
Data crumb waiting?
10411
No
Create crumb
10412
Yes
Yes
Data exists?
10413
No
Update crumb w/new
10414
Data priority > existing?
10415
Yes
Create alt crumb w/existing
10416
Delete existing from crumb
10417
No
Create alt crumb w/new
10418
Low memory?
10419
Yes
Delete lowest priority alt crumb
10420

FIG.23

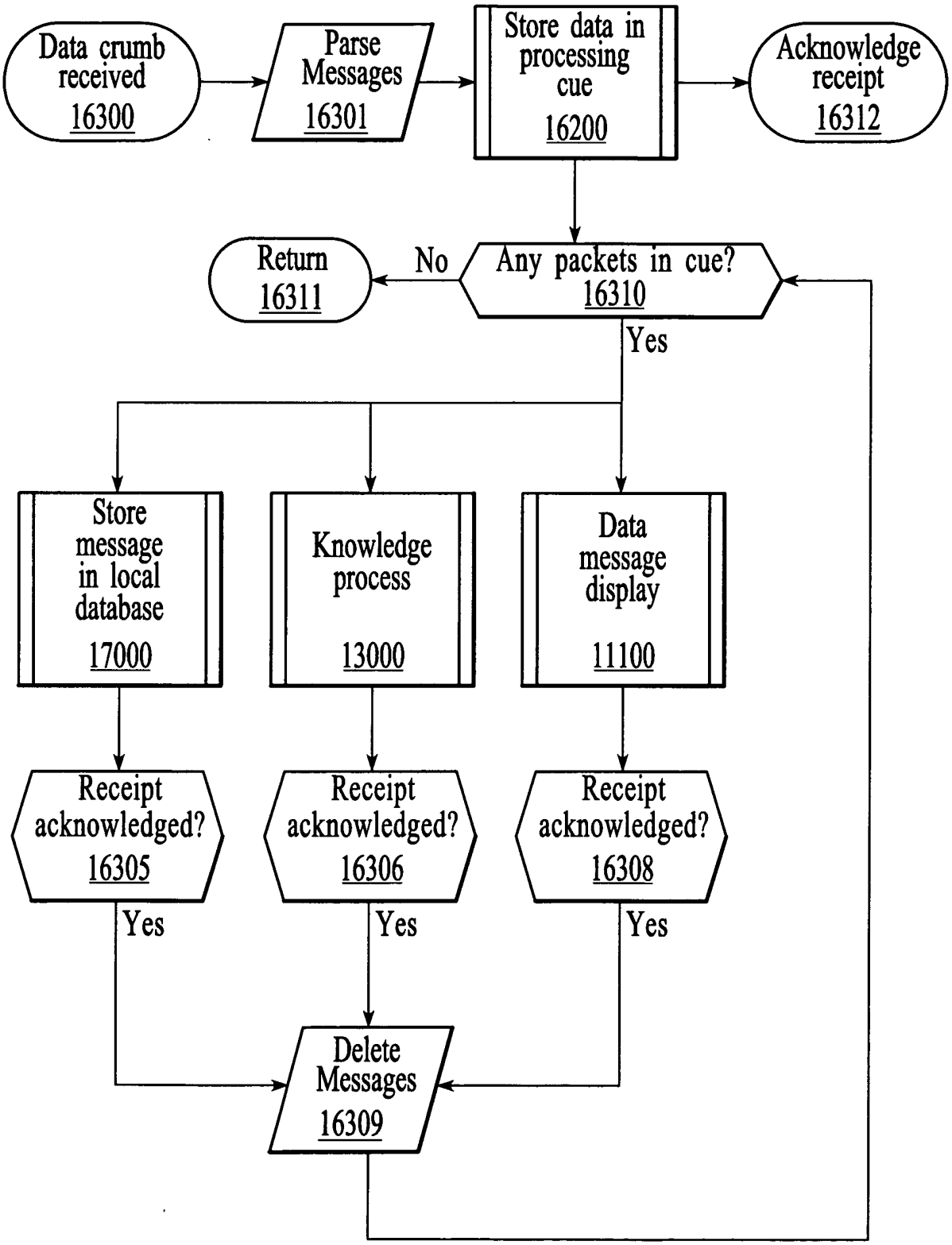

Data crumb received 16300
Parse Messages 16301
Store data in processing cue 16200
Acknowledge receipt 16312
Return 16311
No
Any packets in cue? 16310
Yes
Store message in local database 17000
Knowledge process 13000
Data message display 11100
Receipt acknowledged? 16305
Receipt acknowledged? 16306
Receipt acknowledged? 16308
Yes
Yes
Yes
Delete Messages 16309

FIG.24

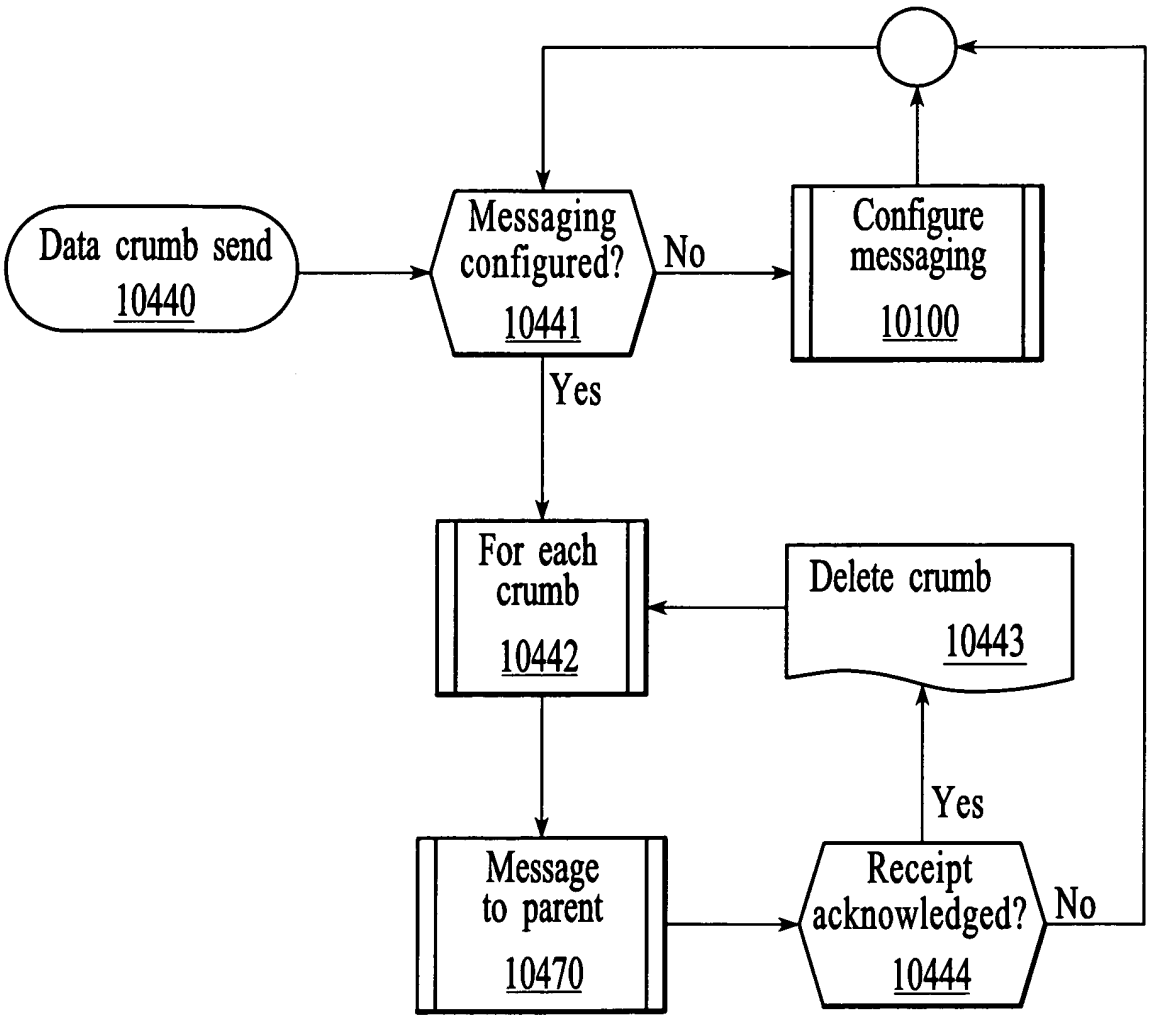

Data crumb send
10440
Messaging configured?
10441
No
Configure messaging
10100
Yes
For each crumb
10442
Delete crumb
10443
Message to parent
10470
Receipt acknowledged?
10444
Yes
No

FIG.25

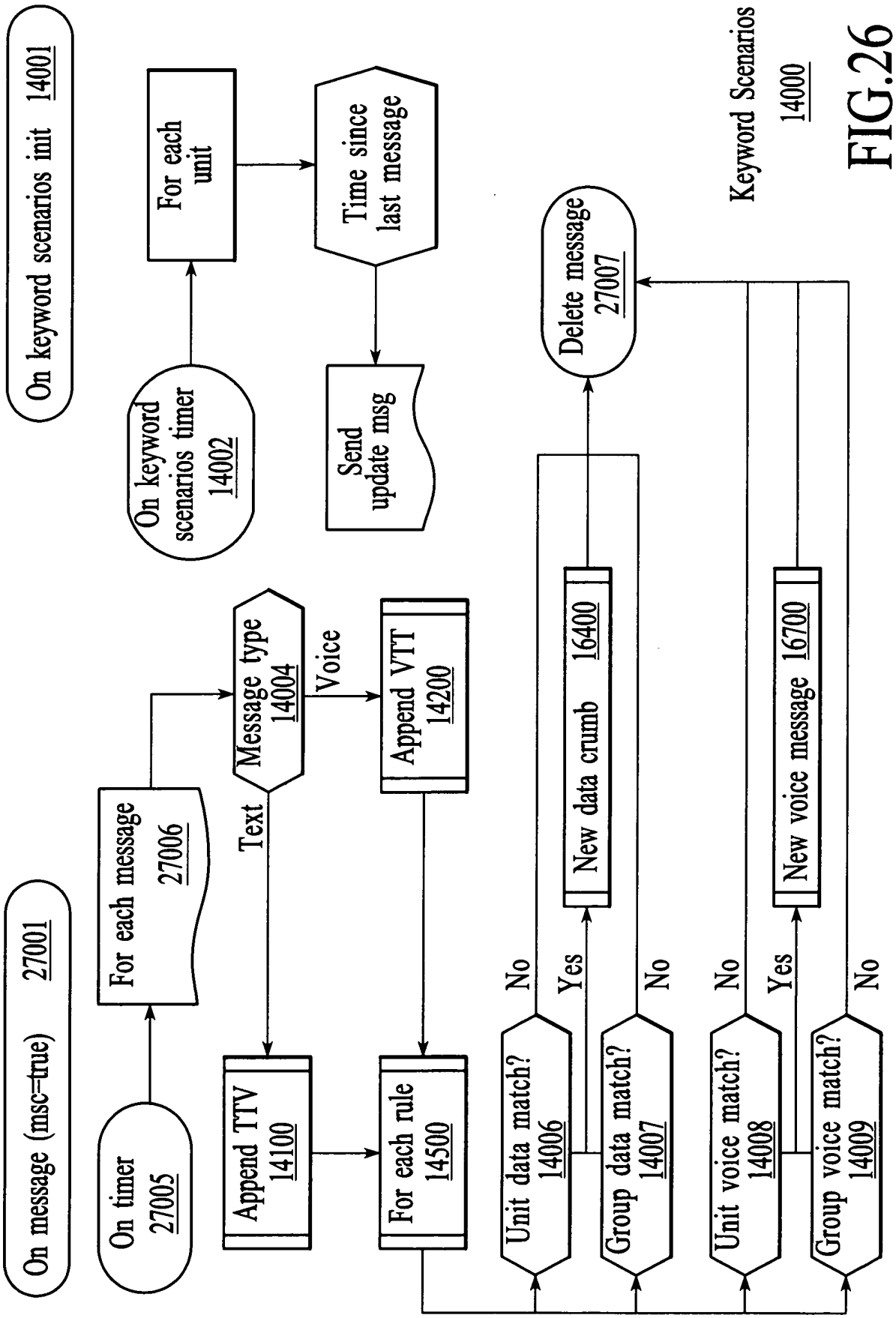

On keyword scenarios init 14001
For each unit
Time since last message
On keyword scenarios timer 14002
Send update msg
On message (msc=true) 27001
For each message 27006
Message type 14004
Text
Voice
On timer 27005
Append TTV 14100
Append VTT 14200
For each rule 14500
Unit data match? 14006
Group data match? 14007
Unit voice match? 14008
Group voice match? 14009
No
Yes
New data crumb 16400
New voice message 16700
Delete message 27007
Keyword Scenarios 14000

FIG.26

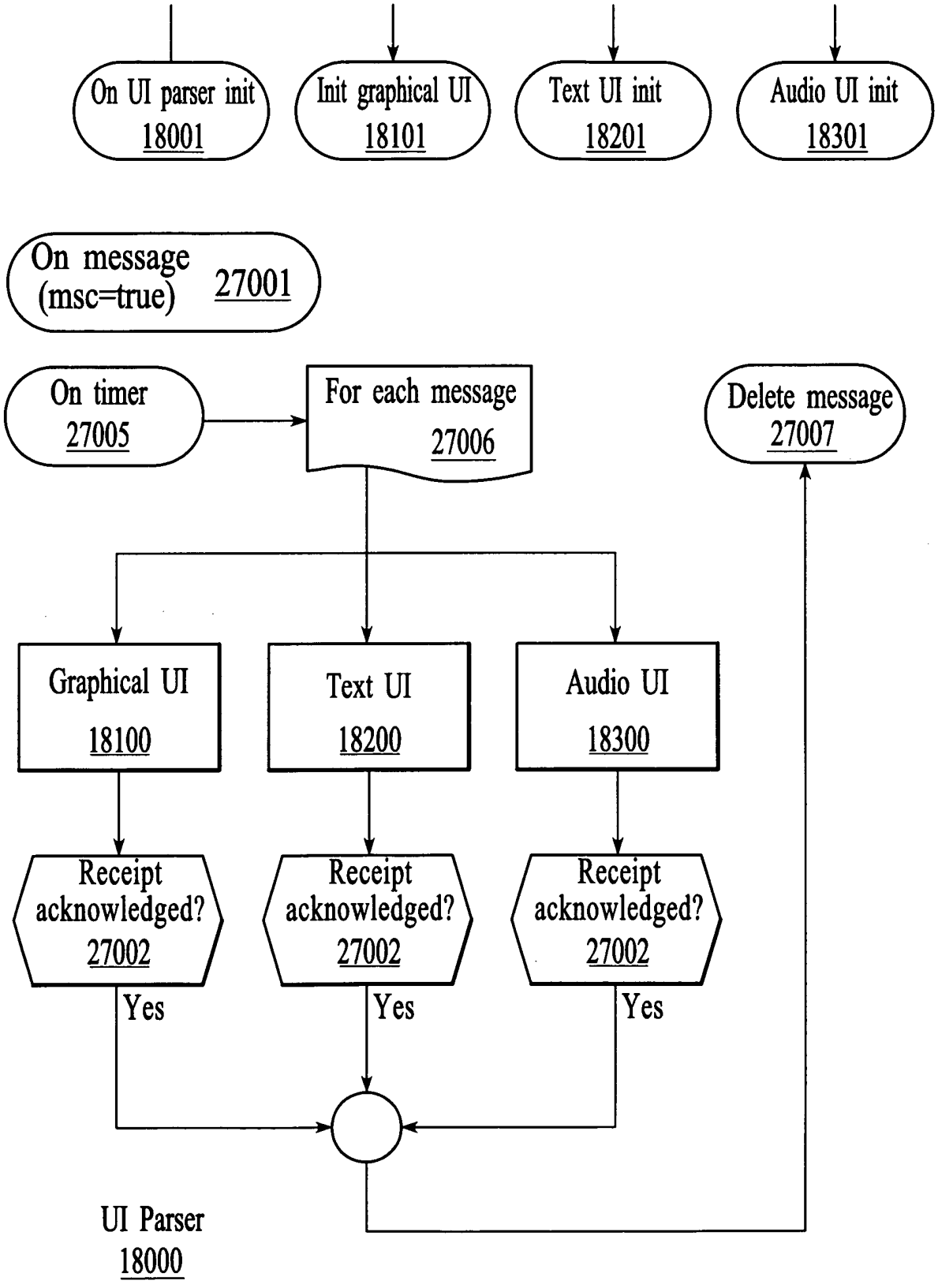
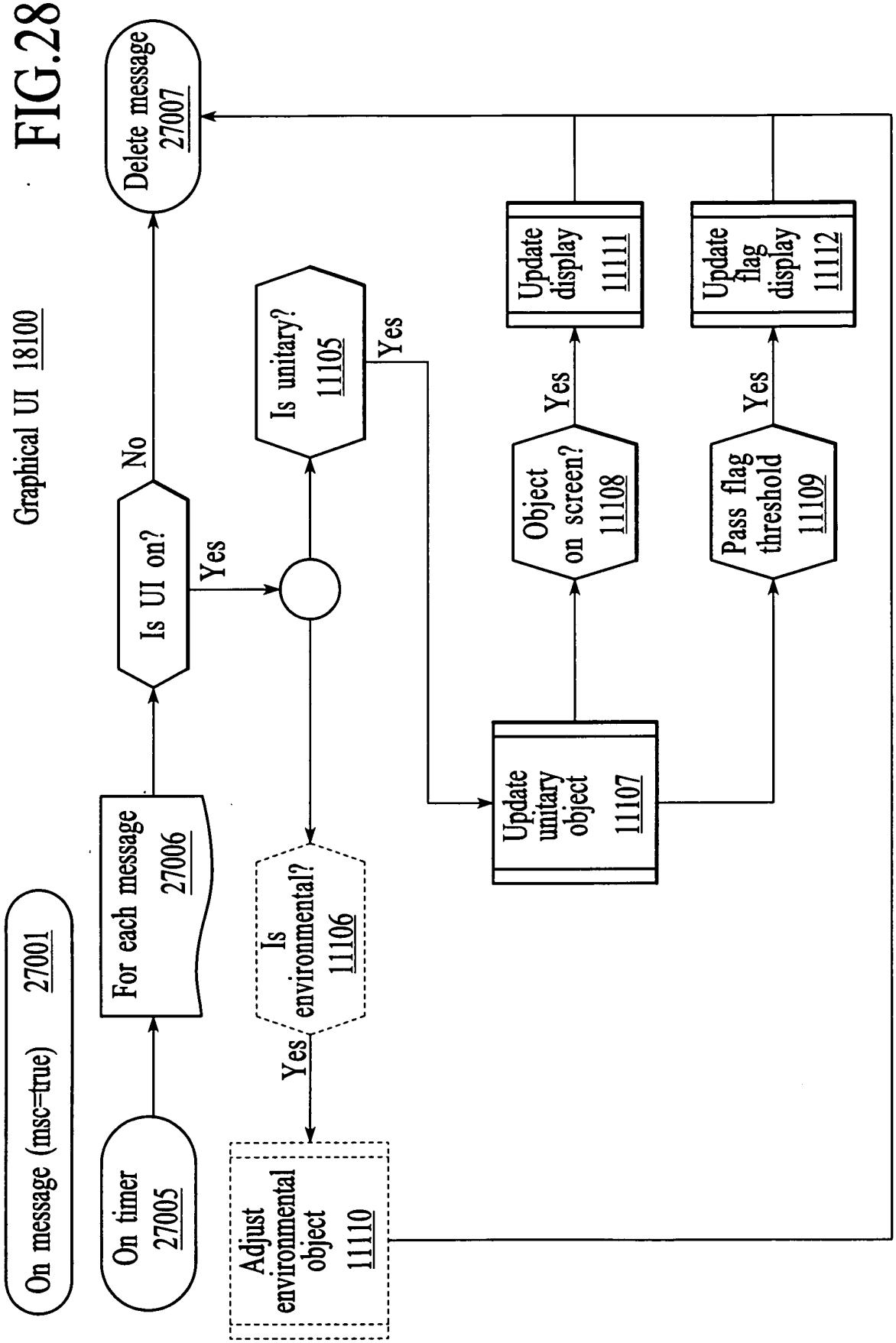

On UI parser init
18001
Init graphical UI
18101
Text UI init
18201
Audio UI init
18301
On message
(msc=true)
27001
On timer
27005
For each message
27006
Delete message
27007
Graphical UI
18100
Text UI
18200
Audio UI
18300
Receipt acknowledged?
27002
Receipt acknowledged?
27002
Receipt acknowledged?
27002
Yes
Yes
Yes
UI Parser
18000

FIG.27

FIG.28


Graphical UI 18100
On message (msc=true) 27001
On timer 27005
For each message 27006
Is UI on?
No
Yes
Delete message 27007
Is unitary? 11105
Yes
Is environmental? 11106
Yes
Adjust environmental object 11110
Update unitary object 11107
Object on screen? 11108
Yes
Update display 11111
Pass flag threshold 11109
Yes
Update flag display 11112

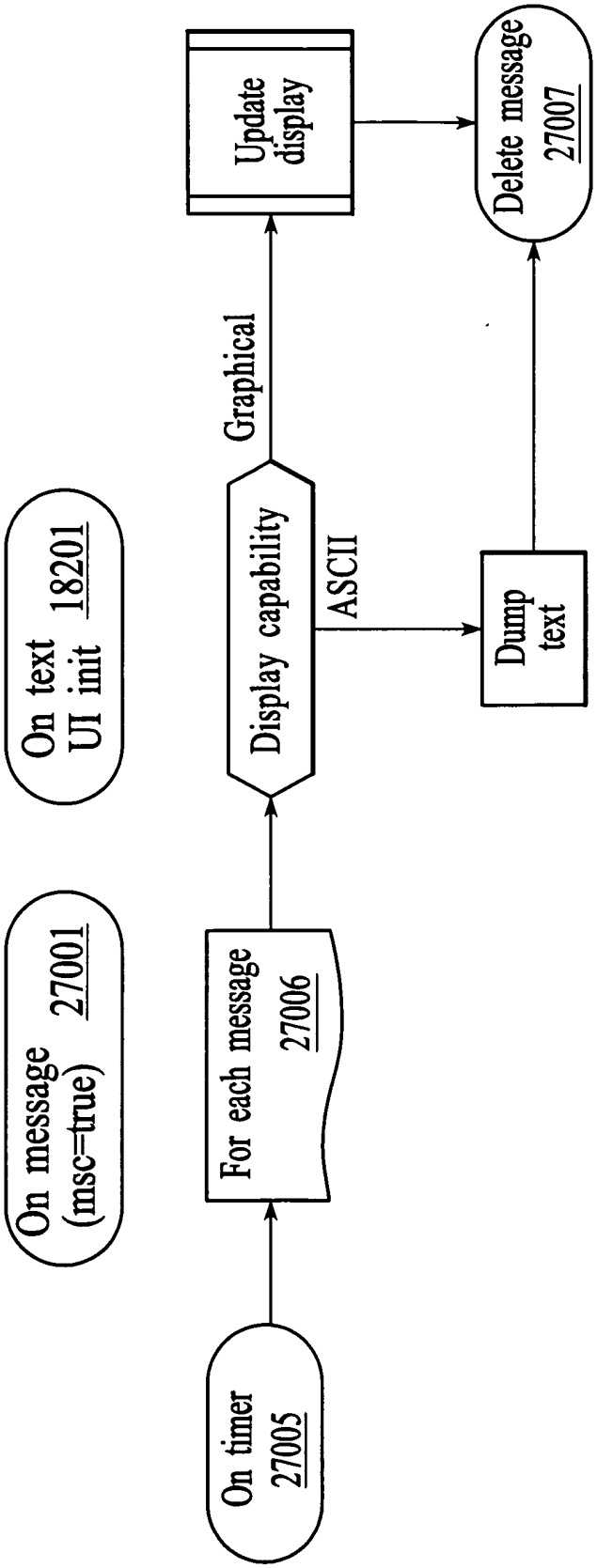

On timer 27005
On message (msc=true) 27001
On text UI init 18201
For each message 27006
Display capability
Graphical
ASCII
Update display
Dump text
Delete message 27007
Text UI 18200

FIG.29

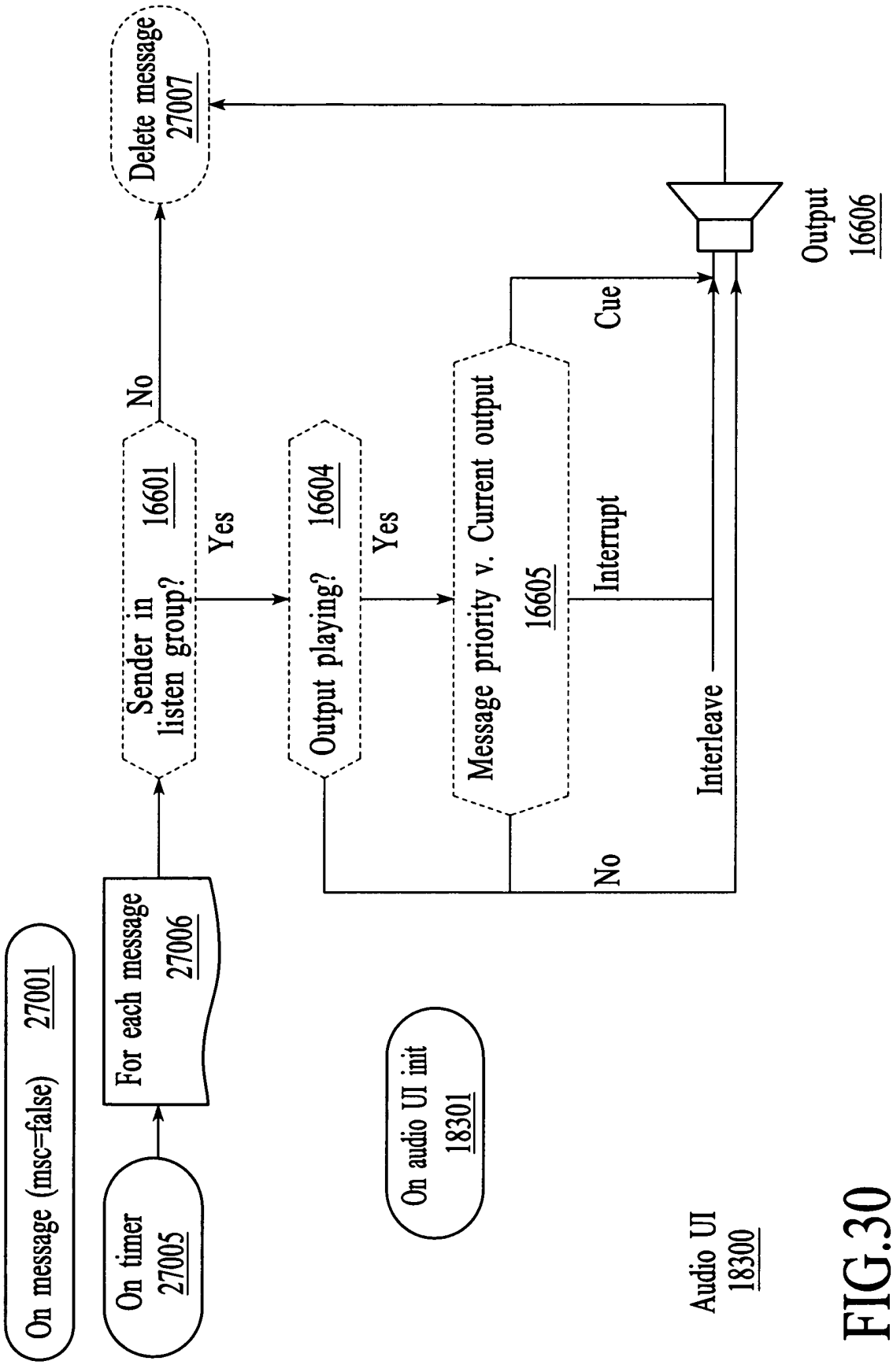
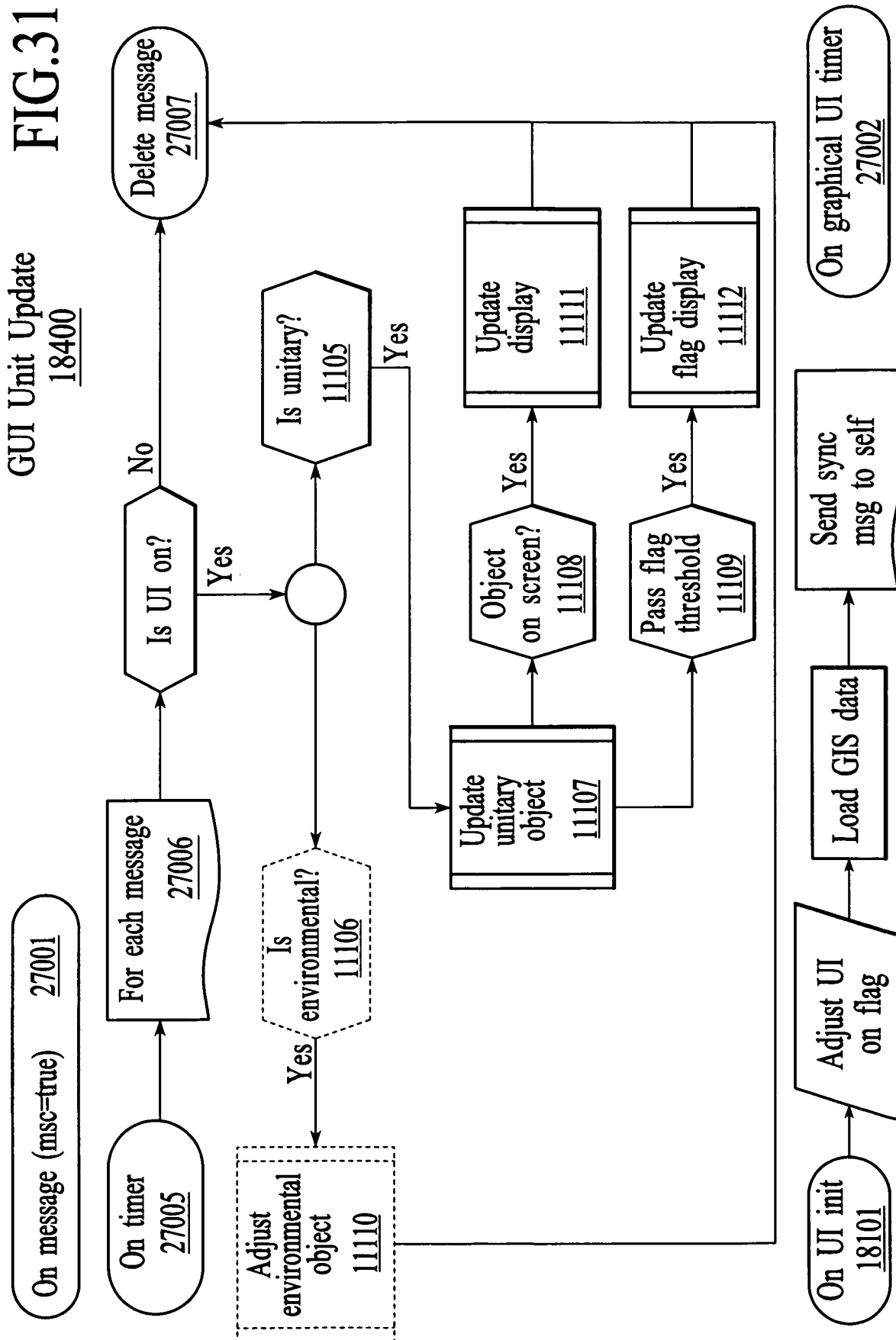
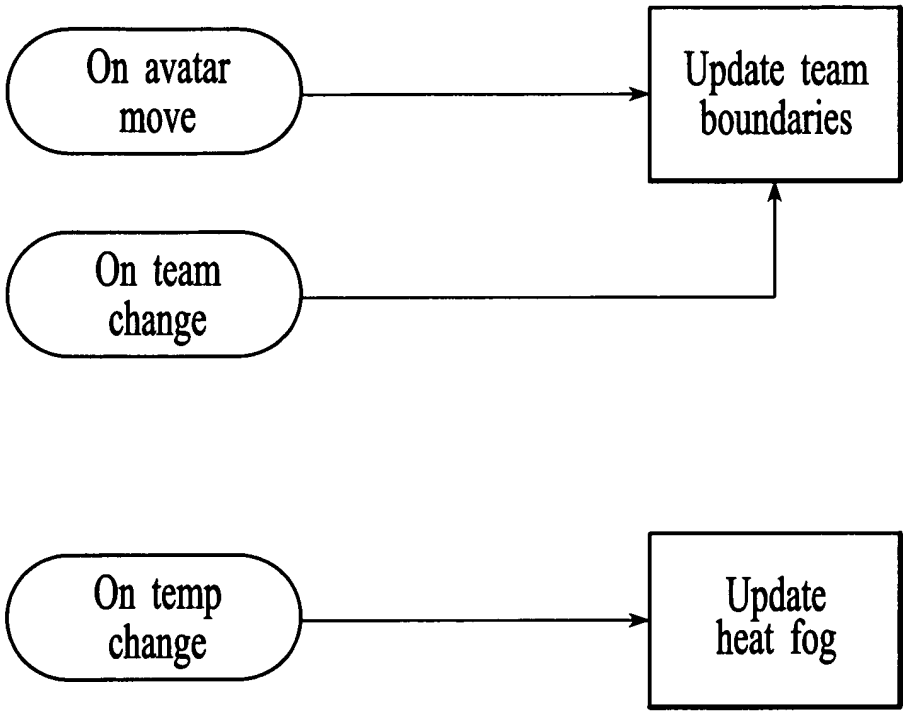

On message (msc=false) 27001
On timer 27005
For each message 27006
Sender in listen group? 16601
No
Yes
Delete message 27007
On audio UI init 18301
Output playing? 16604
Yes
No
Message priority v. Current output 16605
Interrupt
Cue
Interleave
Output 16606
Audio UI 18300

FIG.30

FIG.31


GUI Unit Update
18400
On message (msc=true) 27001
On timer 27005
For each message 27006
Is UI on?
No
Yes
Delete message 27007
Is unitary? 11105
Yes
Is environmental? 11106
Yes
Adjust environmental object 11110
Update unitary object 11107
Object on screen? 11108
Yes
Update display 11111
Pass flag threshold 11109
Yes
Update flag display 11112
On UI init 18101
Adjust UI on flag
Load GIS data
Send sync msg to self
On graphical UI timer 27002



GUI Env Update

18500

FIG.32